STEREO CASSETTE DECK

KX-880HX

SERVICE MANUAL

KENWOOD

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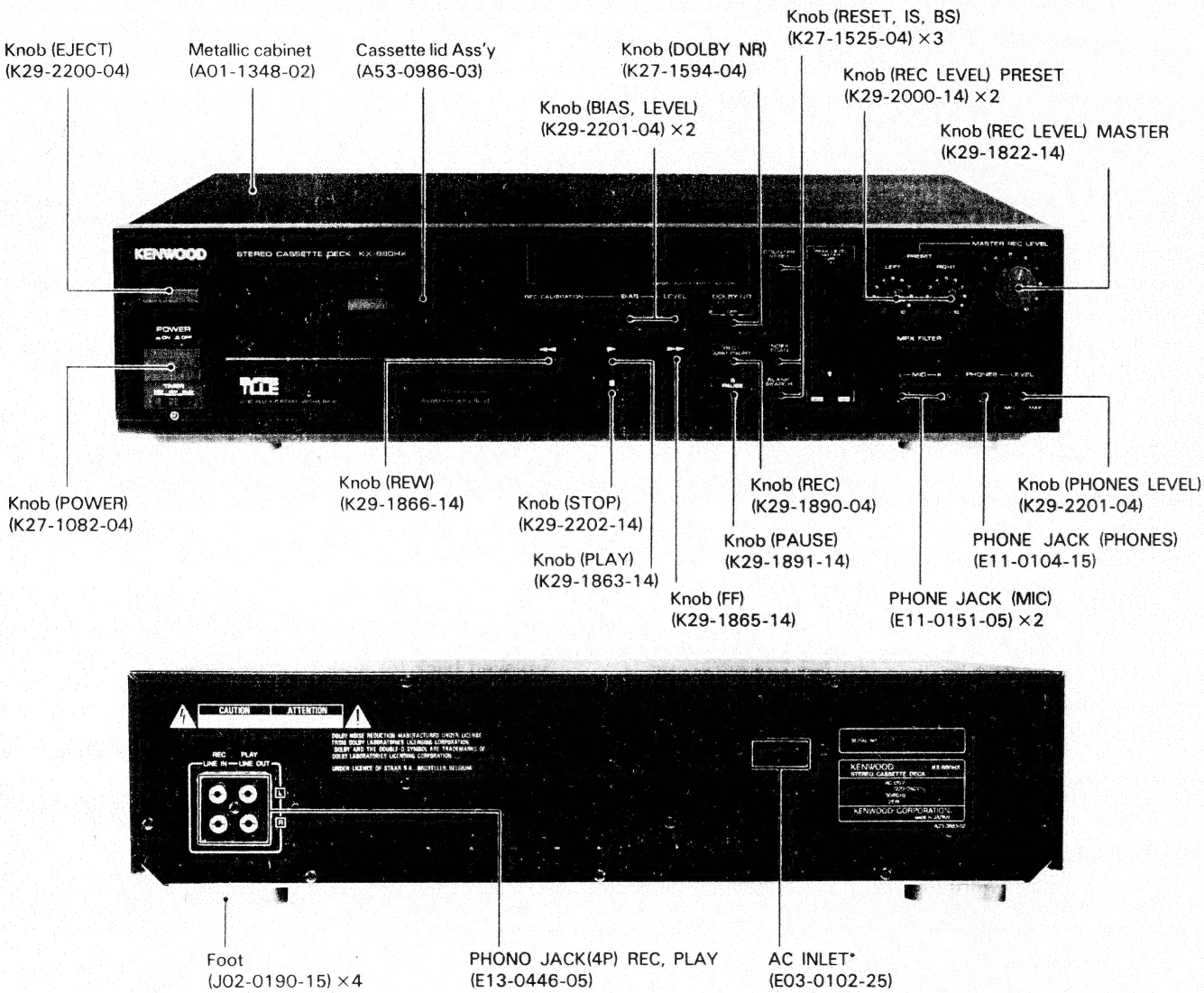
B51-3299-00(B)1581



Foot
(J02-0190-15) ×4

PHONO JACK(4P) REC, PLAY
(E13-0446-05)

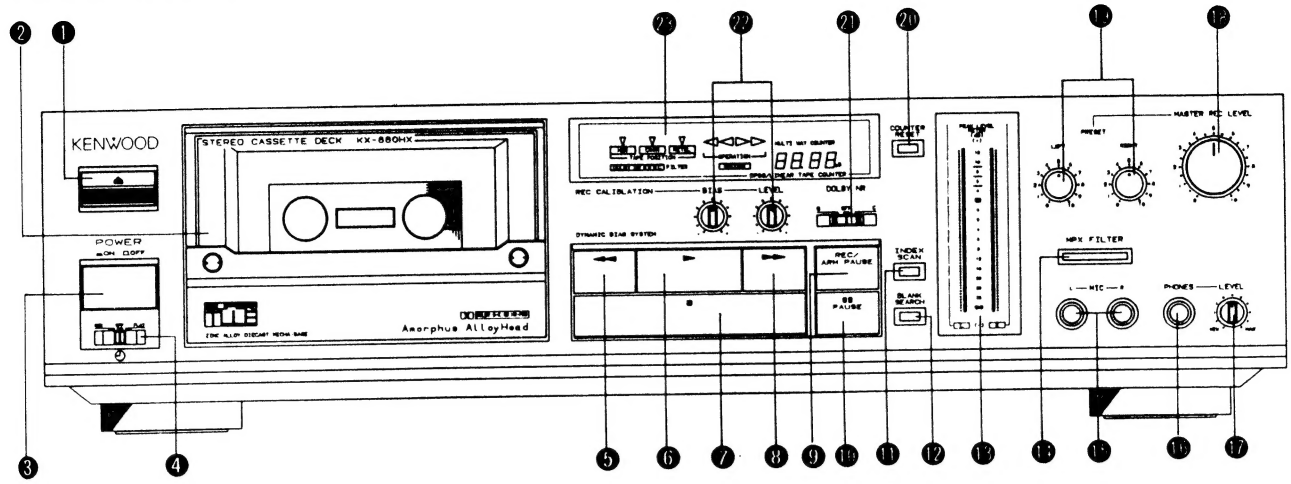
AC INLET*
(E03-0102-25)

* **Refer to parts list on page 33.**

CONTENTS

CONTROLS, INDICATORS AND CONNECTORS

Numbers in front of names correspond that in the diagram.



❶ Eject key (⏏)
Pressing this key to open the cassette holder.

❷ Cassette holder
Press the eject key is pressed, this holder opens. Press the left upper section of the holder until it locks to close it.

❸ POWER switch
Press this switch to turn the power ON. Pressing again turns the power OFF.

❹ TIMER stand-by switch
Use this switch along with an audio timer when an unattended recording or timer-playback is performed. Set this switch to the REC position for unattended recording, to the PLAY position for timer-playback, and **set to OFF when the timer is not used.**

❺ Rewind key (◀◀)
Press this key to rewind the tape from right to left at high speed.

❻ Play key (▶)
Press this key to forward the tape at fixed speed and start playback; the play indicator (▶) will light up.

❼ Stop key (■)
Press this key to stop the tape travel.

❽ Fast forward key (▶▶)
Press to advance the tape rapidly from left to right.

❾ REC/ARM PAUSE key
Press this key to start recording. It is not necessary to press the play key simultaneously since this unit is provided with one-touch recording system. At this time, the record and play indicators light up.
When this key is pressed again during recording, about 4 seconds non-recorded section is made and the tape travel will stop temporarily.

❿ PAUSE key (❚❚)
To interrupt recording or playback momentarily, press this key. When this key is pressed during playback, the play indicator blinks and the playback is interrupted momentarily. When this key is pressed during recording, the record indicator lights up and the play indicator blinks so that the recording is interrupted. To release the play-pause mode, press the play key and to release the record-pause mode, press the REC/ARM PAUSE key.

⓫ INDEX SCAN key
Press this key to search the desired tune.
When this key is pressed, the beginning of each tune is played back for about 10 seconds.

⓬ BLANK SEARCH key
This key is used to search for blank sections of more than 1 minute between tunes or the end of the previously recorded section, etc.

⓭ PEAK LEVEL METERs
This indicates the peak values of the input levels when recording or output levels when playback.

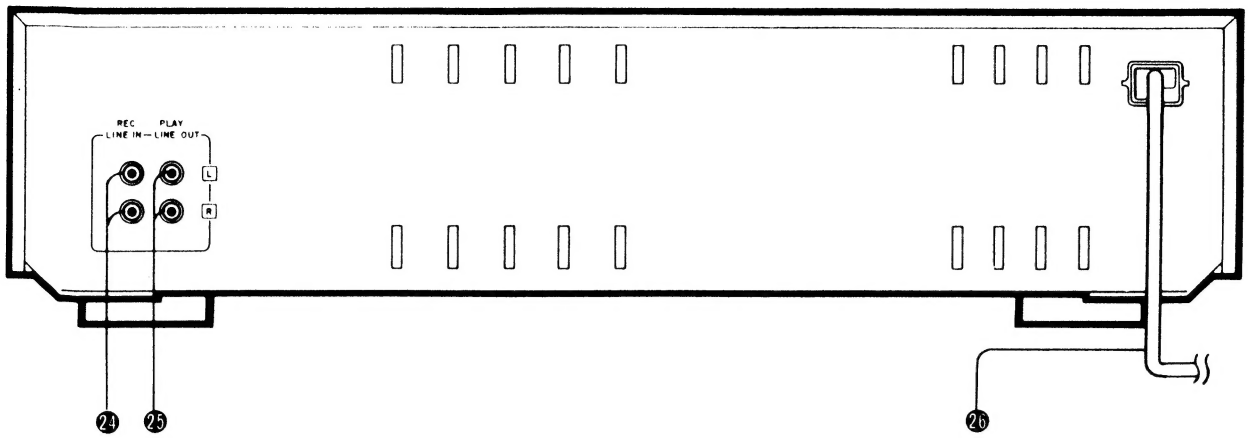
⓮ MPX FILTER switch
Use this switch when recording FM broadcast using Dolby NR with this switch set to ON, the 19 kHz pilot signal and 38 kHz sub-carrier signal contained in the FM stereo broadcast signals are eliminated to prevent malfunctioning of the Dolby NR circuit.

⓯ MIC jacks (L/R)
Plug the microphones into these jacks when recording with microphones; L for left channel and R for right channel. Use low impedance (600 Ohms) microphones.

Note:
When the microphones are connected, the signal input from the LINE IN terminals are automatically cancelled. Disconnect the microphones before recording from LINE sources.

⓰ PHONES jack
Plug the stereo headphones into this jack to monitor recordings or tape playback.

CONTROLS, INDICATORS AND CONNECTORS



⓱ PHONES LEVEL knob
Adjust the volume level for the headphones regardless of the recording input level.

⓲ MASTER REC LEVEL control knob
Adjust the recording input level with this knob. Left and right channel levels are varied simultaneously.

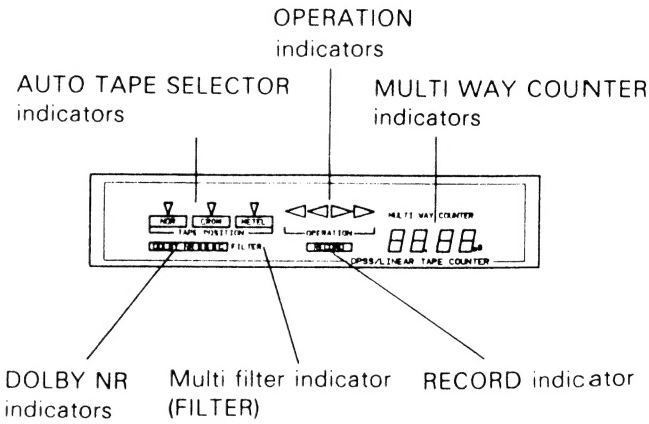
⓳ PRESET record level knobs
The signals for the left and right channels are adjusted independently with these knobs.

⓴ COUNTER RESET key
Press this key to reset the linear tape counter to [:00].

㉑ DOLBY NR select switch
Set this switch to B or C position when playing back the tape recorded with Dolby NR circuit or when recording with Dolby NR circuit.

㉒ REC CALIBRATION ADJ. knob
Adjusting the recording level and bias knobs, enables recording and reproduction at a level matching the kind of the tape being used. This quality can also be demonstrated satisfactorily when using NR.
LEVEL adjustment:
This corrects the recording sensitivity response of the tape being used. First set so that the recording level is at OVU and make the recording.Then when making the reproduction, adjust the reproduction level so that it is the same as the recording level. If the reproduction level is lower than the recording level turn to (+), and if it is higher turn to (–).
BIAS adjustment:
This corrects the recording response of the high-pitch range. Compare with the source tone and make adjustments to align with it. During reproduction, if the high-pitch range seems apt to be insufficient turn to (–), and it seems to be too much turn to (+).
The bias knob can also be adjusted and the sound quality changed in line with your preference.

㉓ Display window
According to the operation mode, each indicator lights up or flickers.



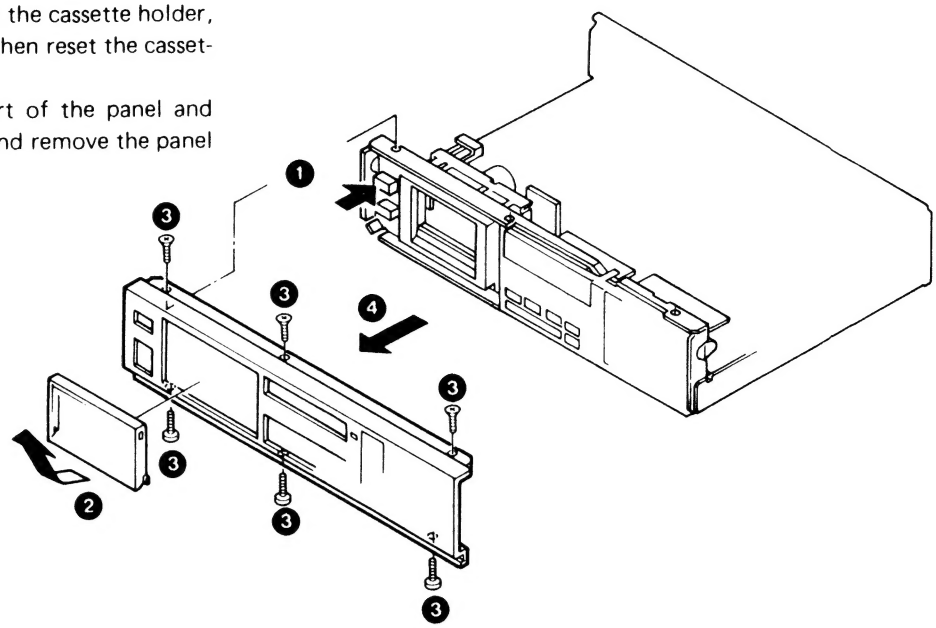
㉑ LINE IN REC terminals
Connect the Tape Rec terminals of your amplifier, etc. to these terminals using the audio cables provided.

㉕ LINE OUT PLAY terminals
Connect the Tape Play or AUX terminals of your amplifier, etc. to these terminals using the audio cables provided.

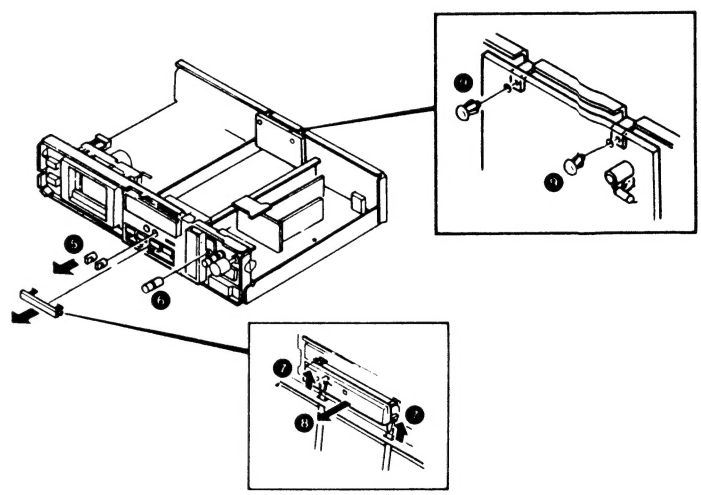
㉖ Power cord
Plug this into the wall outlet or AC outlet of the amplifier, etc.

DISASSEMBLY FOR REPAIR

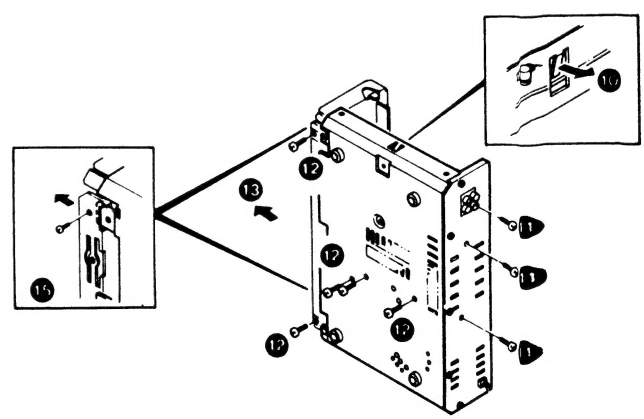
1. Press EJECT knob (❶) to pull out the cassette holder, remove the cassette lid (❷), and then reset the cassette holder.
2. Remove 3 screws on the upper part of the panel and 3 screws on the lower part (❸), and remove the panel (❹).



3. Remove 4 CALIBRATION (BIAS, LEVEL) knobs (❺) and PRESET (L) knob (❻).
4. Insert (—) screw driver to the escutcheon hole (❼), and pull out STOP knob toward you (❽).
5. Remove 2 push rivet (❾) which fix the PC board to the rear panel.

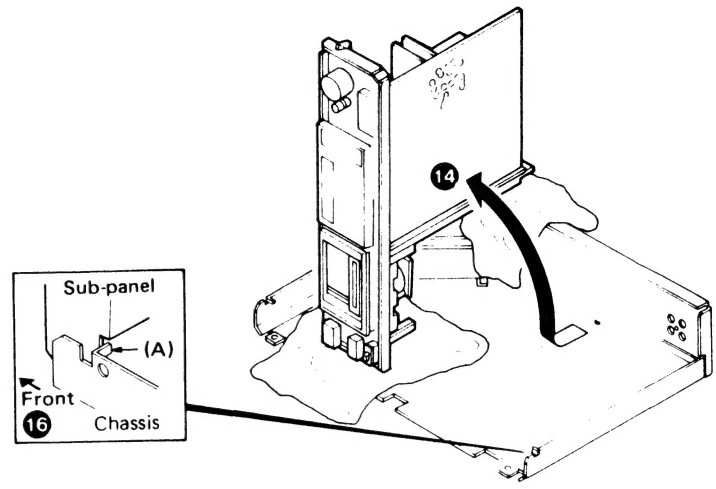


6. Bend the chassis claw outward (❿).
7. Remove 3 screws (⓫) on the rear of the panel and 5 screws (⓬) on the chassis, and then pull out the sub-panel assembly slightly toward you and set it upright (⓭ , ⓮).

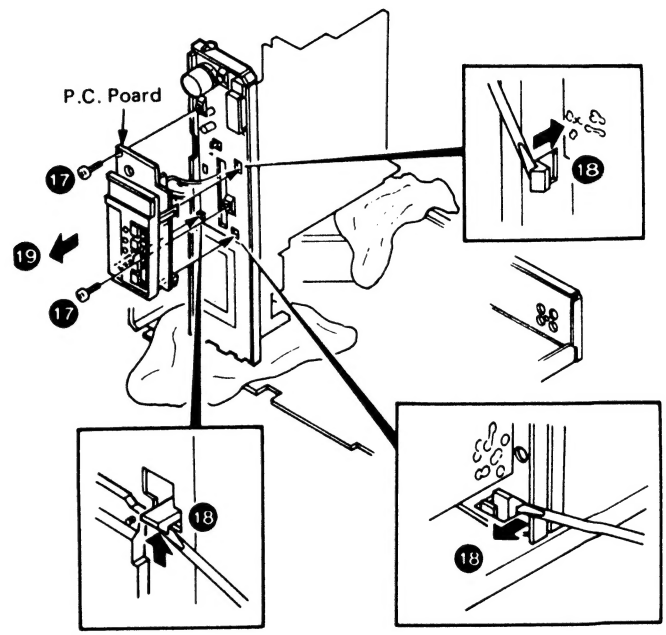


DISASSEMBLY FOR REPAIR

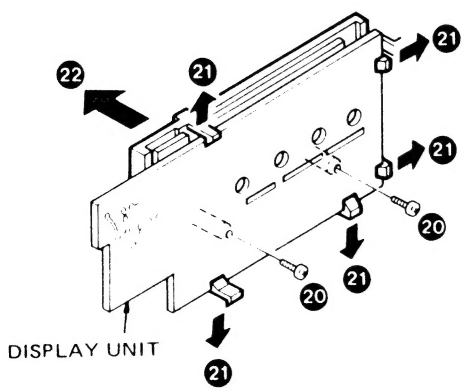
Note : When assembling the sub-panel assembly and chassis, insert the chassis's claw to the inside as shown in ⑮ , and press the sub-panel into a projection of the chassis (A) as shown in ⑯ .

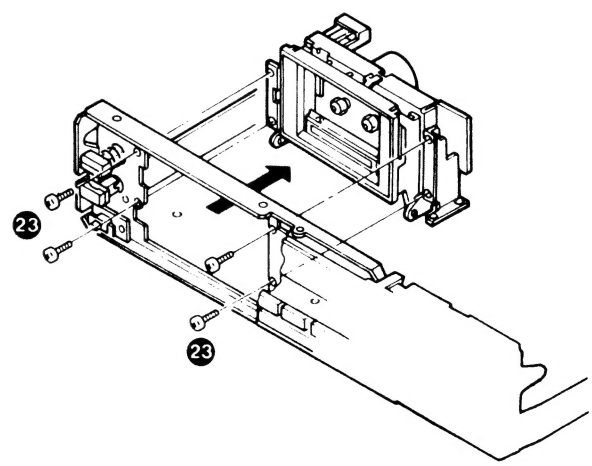


8. Remove 2 screws which fasten the display unit (⑰), remove 3 hooks fixed on the sub-panel (⑱), and then pull out the display unit toward you (⑲).

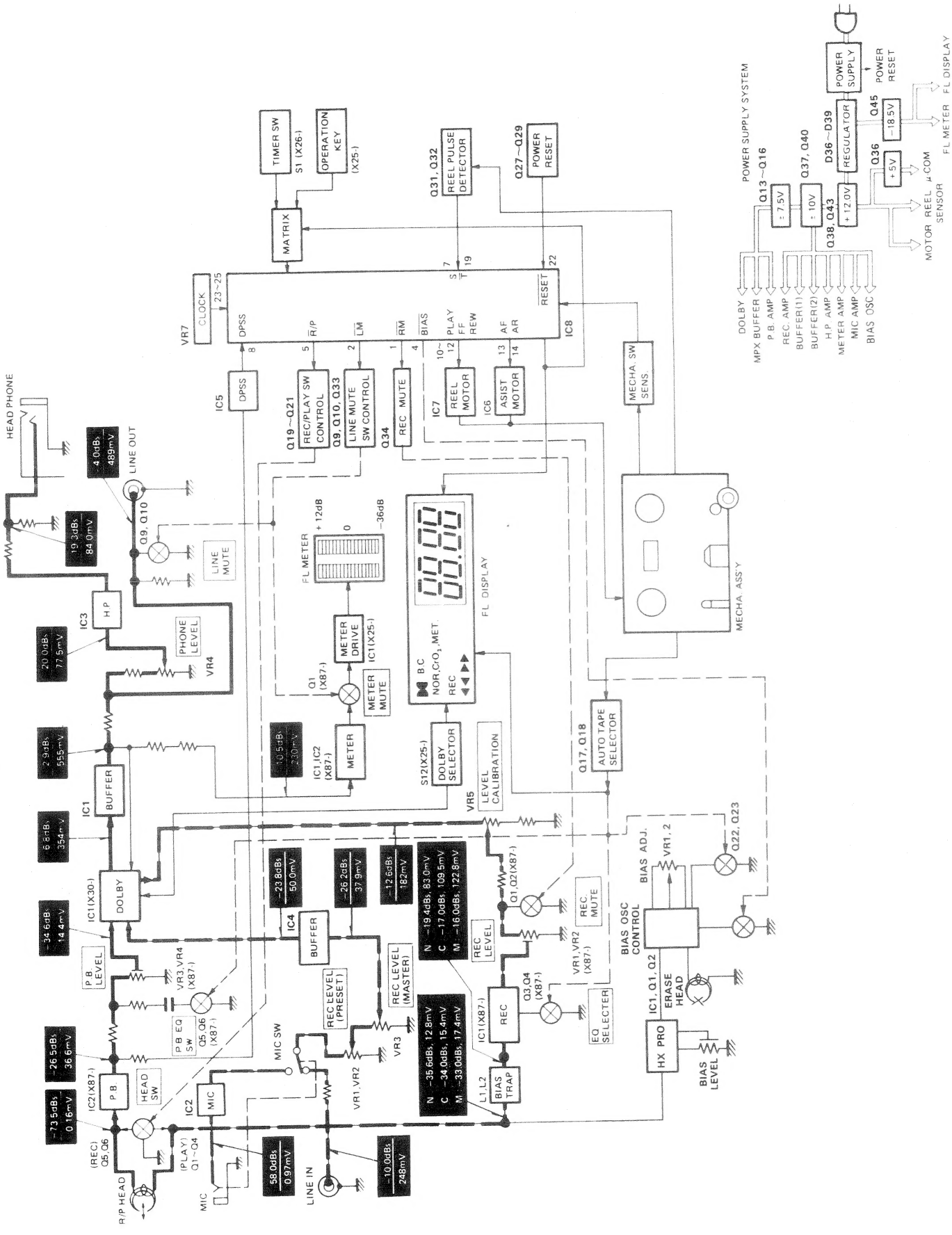


9. Remove 2 screws which fasten the display unit and escutcheon (⑳).
10. Remove 5 hooks (㉑), and disassemble the display unit and escutcheon (㉒).
11. Remove 4 screws on both ends of front side of the sub-panel (㉓), and remove the mechanism assembly to the rear side.

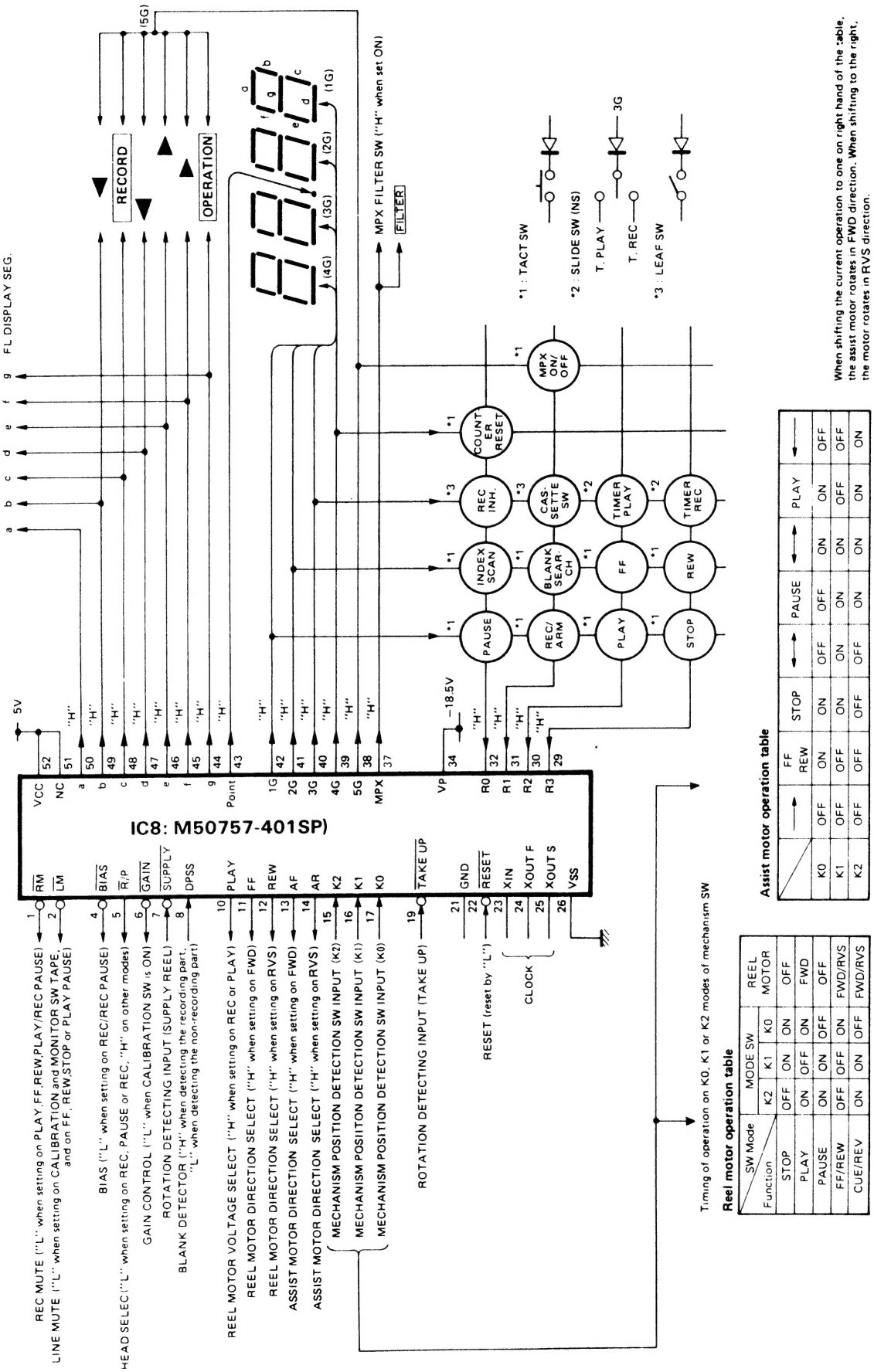




BLOCK / LEVEL DIAGRAM



CIRCUIT DESCRIPTION



Reel motor operation table

SW Mode / Function	MODE SW K2	MODE SW K1	MODE SW K0	REEL MOTOR
STOP	OFF	ON	ON	OFF
PLAY	ON	OFF	ON	FWD
PAUSE	ON	ON	OFF	OFF
FF/REW	OFF	OFF	ON	FWD/RVS
CUE/REV	ON	ON	OFF	FWD/RVS

Assist motor operation table

	→	FF REW	STOP	↔	PAUSE	↔	PLAY	←
K0	OFF	ON	ON	OFF	OFF	ON	ON	OFF
K1	OFF	OFF	ON	ON	ON	ON	OFF	OFF
K2	OFF	OFF	OFF	OFF	ON	ON	ON	ON

CIRCUIT DESCRIPTION

Description of Components

Display Unit (X25-2450-01)

Components	Use/Function	Operations/Condition/Interchangeability
Q1, 2	Peak-hold reset	A flip-flop circuit is formed and, in 3 seconds, Q 2 goes ON momentarily, resetting the peak holding.
IC1	FL level meter drive	2-CH dynamic

Cassette Unit (X26-1182-71)

Components	Use/Function	Operations/Condition/Interchangeability
Q1~4	Head changeover switch	OFF during REC and REC PAUSE
Q5, 6	Head changeover switch	ON during REC and REC PAUSE
Q9, 10	LINE MUTE switch	During PLAY, REC and REC PAUSE, the $\overline{LM}$ terminals at microprocessor IC8 pin 2 goes "H", turning Q33 OFF and turning Q9 and Q10 OFF.
Q13, 15	+7.7 V supply	Regulated power supply for PB amp.
Q14, 16	−7.7 V supply	Regulated power supply for PB amp.
Q17, 18	AUTO TAPE SEL control	The statuses depend on the tape detector switch in the mechanism. Q17: OFF / OFF / ON Q18: OFF / ON / OFF (NOR / CrO_2 / METAL)
Q19~21	REC/PLAY control	During REC and REC PAUSE, the $\overline{R/P}$ terminal at microprocessor IC8 pin 5 goes "L", turning Q21 ON. Q19: OFF / ON Q20: OFF / ON Q21: ON / OFF (REC, REC PAUSE / OTHERS)
Q22, 23	Bias level control	The statuses depend on the tape detector switch in the mechanism. Q22: ON / ON / OFF Q23: ON / OFF / OFF (NOR / CrO_2 / METAL)
Q24~26	Bias oscillation control	During REC and REC PAUSE, the $\overline{BIAS}$ terminal at microprocessor IC8 pin 4 goes "L", turning the transistors as follows: Q24: ON / OFF Q25: OFF / ON Q26: ON / OFF (REC, REC PAUSE / OTHERS)
Q27~29	Microprocessor reset	Q27: ON "L" for specified period, then OFF / ON "L" for specified period, then OFF Q28: OFF for specified period, then ON / After OFF for specified period, ON, then ON Q29: ON / OFF (Immediately after power ON / Immediately after power OFF) When turning power ON/OFF, "L" is applied to $\overline{RESET}$ at microprocessor IC8 pin 22 to reset the microprocessor.
Q30	Reel motor drive voltage control	During REC and PLAY, goes ON setting the voltage at reel motor drive IC7 pin 4 to +4.0 V. The voltage is 5.7 to 6.2 V in other modes.
Q31, 32	Rotation detector amp	5 rotation pulses per reel rotation are supplied from the mechanism. This amp shapes these pulses into a waveform suitable for the microprocessor.
Q33	LINE MUTE drive	Controlled by output $\overline{LM}$ from microprocessor IC8 pin 2. Q33: OFF / ON / ON (REC/PLAY/REC PAUSE / OTHERS / Power ON/OFF)
Q34	REC MUTE drive	During REC, output $\overline{RM}$ at microprocessor IC8 pin 1 goes "H", turning Q34 OFF. In other modes, Q34 is ON, turning Q1 and Q2 of the REC amp unit on DT2 (X87-1030-04 A/2).

KX-880HX

CIRCUIT DESCRIPTION

Components	Use/Function	Operations/Condition/Interchangeability
Q35	DPSS amp sensitivity switch	During PLAY, goes ON to increase the DPSS amp sensitivity. During CUE and REVIEW, goes OFF to decrease the DPSS amp sensitivity.
Q36	+5 V supply	Regulated power supply of HI voltage for microprocessor and FL display.
Q37~39	+9 V supply	Regulated power supply for signal amps (Q37 for control, Q39 for constant current, Q38 for error detection).
Q40~42	−9 V supply	Regulated power supply for signal amps. Together with Q37 to Q39, form the tracking power supply.
Q43, 44	+12 V supply	Regulated power supply for mechanism power and other +ve power systems.
Q45,46	−16.5 V supply	Regulated power supply of LO voltage for FL display circuit.
IC1	Output buffer amp	
IC2	MIC amp	
IC3	PHONES amp	
IC4	Dolby filter, buffer amp	
IC5	DPSS amp	Pin 1 outputs "L" when non-recorded blank is detected, and "H" when recorded signal is detected.
IC6	Assist motor drive	
IC7	Reel motor drive	
IC8	Microprocessor	

Dolby Unit (X30-1270-00)

Components	Use/Function	Operations/Condition/Interchangeability
Q1~4	Dolby filter ON/OFF switch	ON when filter is ON.
IC1	Dolby B/C encoder/decoder amp	

Meter Amp Unit (X87-1020-00)

Components	Use/Function	Operations/Condition/Interchangeability
Q1	METER MUTE switch	OFF during PLAY, REC and REC PAUSE, and ON in other modes.
IC1	1/2-exponential compressing amp	Outputs the DC voltage proportional to the AC input signal by 1/2 exponent.
IC2	DC amp	Amplifies the IC1 output voltage to the required level.

Record/Play Amp Unit (X87-1030-04)

Components	Use/Function	Operations/Condition/Interchangeability
Q1, 2	REC MUTE switch	During PLAY, FF, PLAY PAUSE and REC PAUSE, the $\overline{RM}$ control terminal at microprocessor IC7 (X26-1182-71) pin 1 outputs "L", turning Q34 (X26-1182-71) ON. This applies "H" to the bases of Q1 and Q2, turning Q1 and Q2 ON.
Q3, 4	Equalizer switch (for METAL)	Controlled by AUTO TAPE SEL (X26-1182-71) of Q17 and Q18. OFF with METAL tape, and ON with NORMAL and CrO_2 tapes.
Q5, 6	Play equalizer switch	Controlled by AUTO TAPE SEL (X26-1182-71) of Q17 and Q18. OFF with NORMAL tape (120 μs), and ON with CrO_2 and METAL tapes (70 μs).
IC1	Record equalizer amp	
IC2	Play equalizer amp	

BIAS OSC UNIT (X87-1190-00)

Component	Use/Function	Operation/Condition/Compatibility
IC1	HX-PRO IC	
Q1	Bias oscillator	Bias oscillator for erase head.
Q2	Bias oscillator control	Bias oscillator level control for recording.

CIRCUIT DESCRIPTION

DOLBY HX-PRO SYSTEM

Improvement of Bias with the Dolby HX-PRO System

The DOLBY HX-PRO system is designed to vary the AC bias so that the bias components which are affected by the audio signal can be compensated sequentially. This system is used to control the bias in the servo system so that the effective bias amount (consisting of the "AC bias" and "audio signal") which is actually applied to the head is controlled at a fixed level.

When this system is used, the low and high frequency adjustments, which respectively require an appropriate compromise so that the optimum recording frequency response of a single frequency is obtained, are made quite easily.

Also, the output drop due to self-bias at high frequencies is eliminated. This results in a flat response over a widened high frequency range. **Fig. 1** shows an example of the improvement in the frequency response.

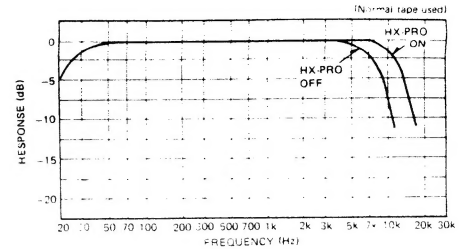


Fig. 1 Improvement example of the tape output frequency response with Dolby HX-PRO

Outline of μPC1297CA (X87-1190-01:IC1)

Dolby HX-PRO System and Construction/Operation of the μPC1297CA

The system construction diagram is shown in **Fig. 2** and the outline of operation is shown in **Fig. 3**. The effective bias is detected at the edge of the tape head. The high-frequency components (more than 10kHz) are extracted from the detected signal by the filter, and converted into a DC voltage. The resultant voltage is compared with the reference voltage for setting the bias amount, and the AC bias is controlled by the VCA (Voltage Controlled Amplifier) circuit so that a constant bias is obtained. By switching the reference voltage, the bias level can be set for each type of tape used.

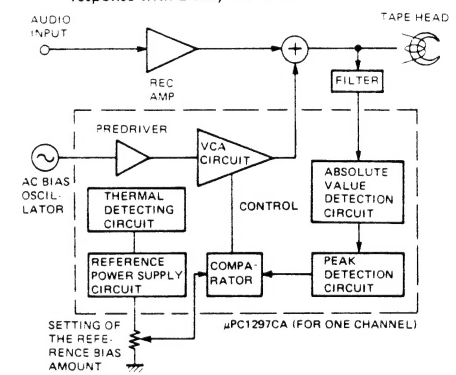


Fig. 2 System configuration of Dolby HX-PRO

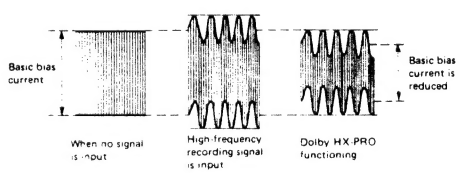


Fig. 3 Operation principle of Dolby HX-PRO

Dolby HX-PRO System Circuit

The μPC1297CA is an IC which control the effective bias amount that is applied to the recording head in the tape deck. "HX" stands for Headroom Extension. With this system, the dynamic range is greatly extended to the high frequencies, while the high frequency response range is improved.

Features

- Wider power voltage range. Vcc = 8~15~18V.
- Two-channel Dolby HX-PRO system provided.
- Lower 2nd harmonics distrotion. −70dB TYP.
- Bias level can be set for each type of head used.
- Thermal detecting protection circuit built-in.
- Packaged in an 18-pin shrink DIP (dual inline package).

Explanation of pin name

Pin No.	Symbol	Pin name	Pin No.	Symbol	Pin name
1	VST	Reference power supply pin	10	VIN(O)	Bias oscillator input pin
2	VR1	Comparator reference pin 1	11	VOUT22	VCA output pin 21
3	VIN(R)1	Signal input pin 1	12	VOUT21	VCA output pin 22
4	PH1	Peak hold capacitor pin 1	13	COUT2	Comparator output pin 2
5	CIN1	Comparator input pin 1	14	CIN2	Comparator input pin 2
6	COUT1	Comparator output pin 1	15	PH2	Peak hold capacitor pin 2
7	VOUT11	VCA output pin 11	16	VIN(R)2	Signal input pin 2
8	VOUT12	VCA output pin 12	17	VR2	Comparator reference pin 2
9	GND	GND (ground) pin	18	Vcc	Power supply pin

ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	CASSETTE TAPE DECK SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
CASSETTE DECK SECTION		TAPE: NORMAL, DOLBY: OFF, INPUT: LINE, CALBRATION: CENTER				0dBs = 0.775V	
I REC/PLAY HEAD							
1	DEMAGNETIZATION	–	–	POWER: OFF Remove the cassette door.	REC/PLAY head	Demagnetize the REC/PLAY head with a head demagnetizer.	
2	CLEANING			PLAY	REC/PLAY head erase head, capstan, pinch roller.	Clean the REC/PLAY head erase head, capstan and pinch roller using a cotton swab slightly damped with alcohol.	
3	AZIMUTH	(A) MTT-114, TCC-185 10kHz, 10dB	(B)	PLAY	Azimuth adjustment screw	Maximum output.	(a)
II DC MOTOR							
<1>	TAPE SPEED	(A) MTT-111, TCC-110 3kHz	(B)	PLAY	Trimming potentiometer in the DC motor	Adjust the tape speed so that a 3kHz signal is produced at the center of the tape.	(b)
III PC BOARD							
<1>	PLAYBACK LEVEL	MTT-150 400Hz	(B)	PLAY	VR3 (L) VR4 (R) (X87-103 B/2)	Output level: -1.2dBs	
		MTT-256 315Hz				Output level: -4.0dBs	
		MTT-256U, TCC-160 315Hz				Output level: 0 dBs	
<2>	BIAS CURRENT	(A) 1kHz, -30dBs 10kHz, -30dBs	(B)	Adjust REC LEVEL VR (MASTER, PRESET) so that the REC monitor output becomes -24dBs at 1kHz, then record and reproduce signal of 1kHz and 10kHz in alternation.	VR1 (L) VR2 (R) (X87-119)	Adjust the bias current adjusting VR so that the playback level of the 10kHz signal is -0.5dB higher than that of the 1kHz signal when recording a 1kHz signal and a 10kHz signal alternately.	
<3>	RECORD LEVEL	(A) 1kHz, 30dBs	(B)	Record and reproduce a 1kHz signal under the conditions set in <2>.	VR1 (L) VR2 (R) (X87-103 A/2)	Adjust the variable resistors so that a playback level of -24dBs is obtained.	
<4>	FL PEAK LEVEL METER	(A) 1kHz, 10dBs	(B)	REC PAUSE Adjust REC and LEVEL VR so that the monitor output is -4dBs at 1kHz.	VR1 (X87-1020)	0dB LED segment is completely lit.	
IV μ-COM CLOCK ADJ							
<1>	CLOCK ADJ	–	TP3	–	VR7 (X26-118)	138Hz	(c)

REGLAGE

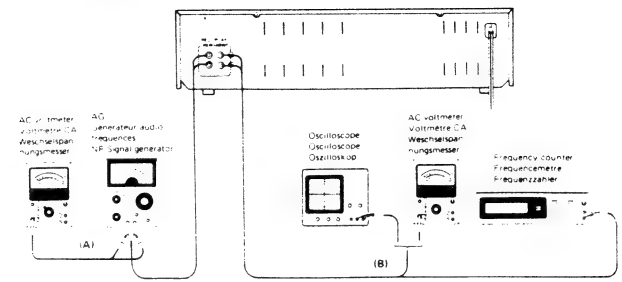
N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU MAGNETO -PHONE A CASSETTE	POINTS DE L'ALIGNEMENT	ALIGNER POUR	FIG.
SECTION DU MAGNETOPHONE		TAPE: NORMAL, DOLBY: OFF, ENTREE: LINE, CALIBRAGE: MILIEU				0dBs = 0.775V	
I TETE D'ENREGISTREMENT/LECTURE							
1	DEMAGNETISATION	–	–	POWER: OFF Eloigner la porte.	Tête D'ENREGISTREMENT/ LECTURE	Demagnétiser la tête D'ENREGISTREMENT/LECTURE avec un démagnétiseur de tête.	
2	NETTOYAGE		–	PLAY	Tête D'ENREGISTREMENT/ LECTURE tête d'effacement, cabestan, galetpresseur	Nettoyer la tête D'ENREGISTREMENT LECTURE la tête d'effacement, le cabestan et le galetpresseur avec un coton-tige légèrement imbibé d'alcool.	
3	AZIMUT	(A) MTT-114, TCC-185 10kHz, 10dB	(B)	PLAY	Vis d'azimut	Sortie maximer.	(a)
II MOTEUR CC							
<1>	VITESSE DE DEFILEMENT	(A) MTT-111, TCC-110 3kHz	(B)	PLAY	Résistance ajustable du moteur CC	Régler la vitesse de bande de façon qu'un signal de 3kHz soit produit au centre de la bande.	(b)
III PLAQUE IMPRIMEE							
<1>	NIVEAU DE LECTURE	MTT-150 400Hz	(B)	PLAY	VR3 (G) VR4 (D) (X87-103 B/2)	Niveau de sortie: -1,2dBs	
		MTT-256 315Hz				Niveau de sortie: -4,0dBs	
		MTT-256U, TCC-160 315Hz				Niveau de sortie: 0 dBs	
<2>	COURANT DE POLARISATION	(A) 1kHz, -30dBs 10kHz, -30dBs	(B)	Régler REC LEVEL VR (MASTER, PRESET) de façon que la sortie de moniteur REC soit de -24dBs à 1kHz, puis enregistrer et reproduire des signaux de 1kHz et 10kHz en alternance.	VR1 (G) VR2 (D) (X87-119)	Ajuster le courant de polarisation en ajustant VR pour que le niveau de lecture du signal 10kHz soit de -0,5dB supérieur à celui du signal 1kHz lors de l'enregistrement d'un signal 1kHz et d'un signal de 10kHz alternativement.	
<3>	NIVEAU D'ENREGISTREMENT	(A) 1kHz, -30dBs	(B)	Enregistrer et reproduire un signal de 1kHz dans les conditions précisées en <2>.	VR1 (G) VR2 (D) (X87-103 A/2)	Ajuster les résistances variables de façon à obtenir un niveau de lecture de -24dBs.	
<4>	INDICATEUR DE NIVEAU DE CRETE A FL	(A) 1kHz, -10dBs	(B)	REC PAUSE Ajuster REC et NIVEAU VR de façon à ce que la sortie moniteur soit de -4dBs à 1kHz.	VR1 (X87-102)	Le segment de FL 0dB soit complètement allumé.	
IV μ-COM MONTRE REGLAGE							
<1>	MONTRE REGLAGE	–	TP3	–	VR7 (X26-118)	138Hz	(c)

ABGLEICH

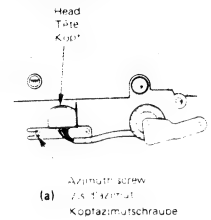
NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	KASSETTENGERÄT-EINSTELLUNG	ABGLEICH PUNKTE	ABGLEICHEN FÜR	ABB.
CASSETTEN-DECK ABTEILUNG		TAPE: NORMAL, DOLBY: OFF, EINGANG: LINE, KALIBREIRUNG: MITTE				0dBs = 0,775V	
I AUFNAHME/WIEDERGABE-KOPF							
(1)	ENTMAGNETISIERUNG	–	–	POWER: OFF Den Kassettenfachdeckel oben herausziehen.	AUFNAHME/WIEDERGABE Kopf	Entmagnetisierung von dem AUFNAHME/WIEDERGABE-Kopf mit einem Tonkopf Entmagnetisierungsdrossel.	
(2)	REINIGUNG		–	PLAY	AUFNAHME/WIEDERGABE Kopf, Löschkopf, Tonwelle, Andruckrolle.	AUFNAHME WIEDERGABE Kopf, Löschkopf, Tonwelle und Andruckrolle mit einem leicht mit Alkohol befeuchteten Wattebausch reinigen.	
(3)	AZIMUT EINSTELLUNG	(A) MTT-114,TCC-153 10kHz, -10dB	(B)	PLAY	Azimut Einstellschraube	Maximale Ausgang	(a)
II GLEICHSTROMMOTOR							
(1)	BANDGESCHWINDIGKEIT	(A) MTT-111,TCC-110 3kHz	(B)	PLAY	Trimmer potentiometer am Gleichstrommotor	Die Bandgeschwindigkeit so justieren, daß ein 3kHz Signal auf der Mitte des Bands erzeugt wird.	(b)
III GEDRUCKTE SCHALTPLATTE							
(1)	WIEDERGABE-PEGEL	MTT-150 400kHz	(B)	PLAY	VR3 (L) VR4 (R) (X87-103 B/2)	Ausgangspegel: -1,2dBs	
		MTT-256 315kHz				Ausgangspegel: -4,0dBs	
		MTT-256U,TCC-160 315kHz				Ausgangspegel: 0 dBs	
(2)	LEERLAUFSTROM	(A) 1kHz, -30dBs 10kHz, -30dBs	(B)	REC PEGEL VR (MASTER,PRESET) so justieren, daß der REC Monitorausgang -24dBs bei 1kHz wird, und danach abwechselnd Signal von 1kHz und 10kHz aufnehmen und wiedergeben.	VR1 (L) VR2 (R) (X87-119)	Den Vormagnetisierungsstrom-Regelwiderstand so einstellen, daß der Wiedergabepegel des 10kHz Signals um -0,5dB hohen ist als der des 1kHz Signals, wenn ein 1kHz Signal und ein 10kHz Signal abwechselnd aufgenommen wurde.	
(3)	AUFNAHMEPEGEL	(A) 1kHz, -30dBs	(B)	Ein 1kHz Signal unter den in Punkt <2> beschriebenen Bedingungen aufnehmen und reproduzieren.	VR1 (L) VR2 (R) (X87-103 A/2)	Die Regelwiederstände so justieren, daß ein wiedergabepegel von 24dBs erzielt wird.	
(4)	FL SPITZEN-PEGELMESSER	(A) 1kHz, -10dBs	(B)	REC PAUSE REC und PEGEL VR so einstellen, daß der Monitorausgang bei 1kHz, -4dBs ist.	VR1 (X87-1020)	Die Regelwiederstände so justieren, daß das 0dB Segment vollständig leuchtet.	
IV μ-COM UHR ABGLEICH							
(1)	UHR ABGLEICH	–	TP3	–	VR7 (X26 113)	133Hz	(c)

ADJUSTMENT/REGLAGE/ABGLEICH

SYSTEM CONNECTION

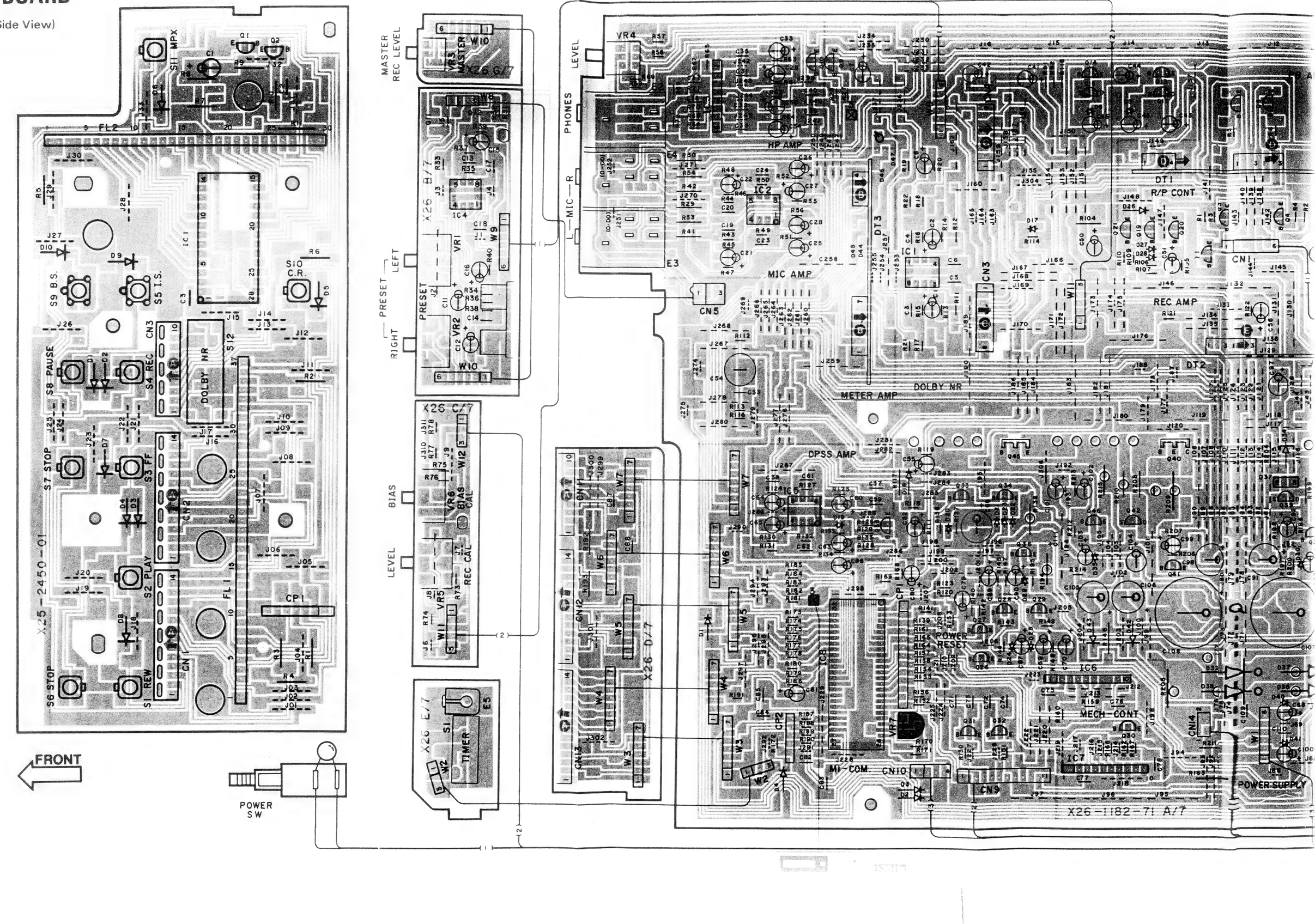


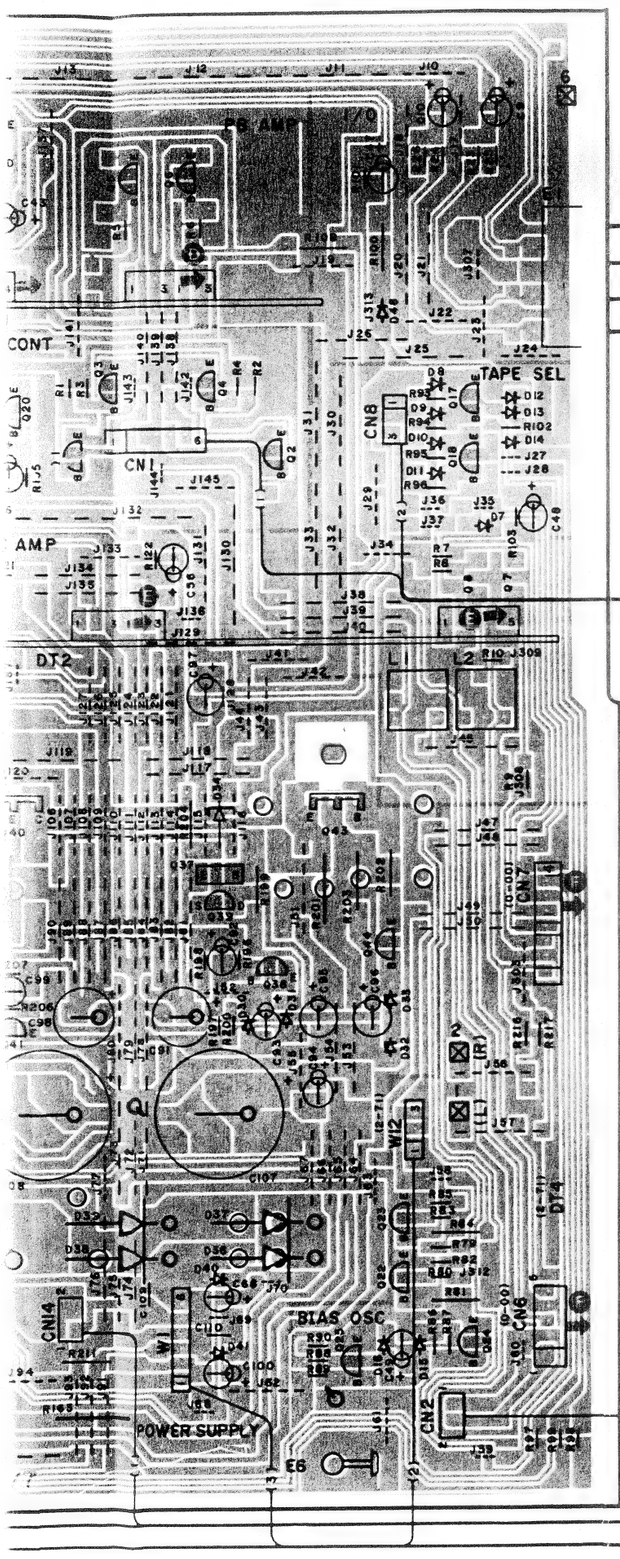
(a)AZIMUTH

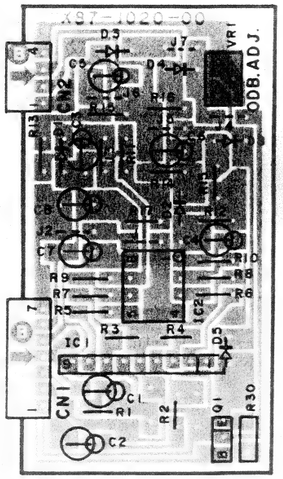


PC BOARD

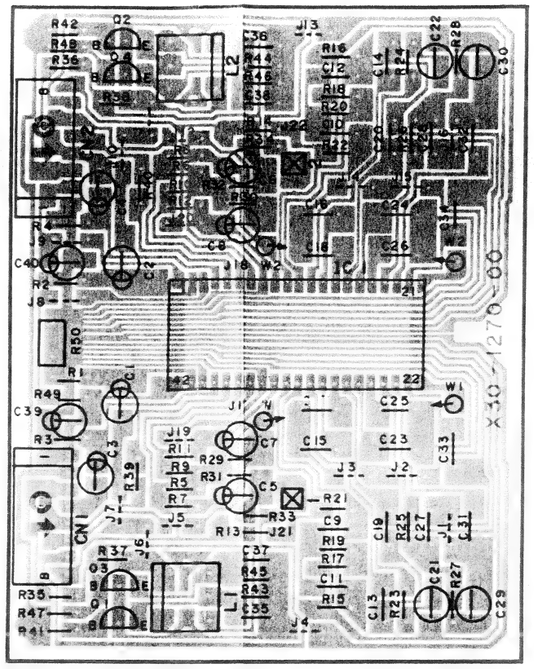
(Foil Side View)

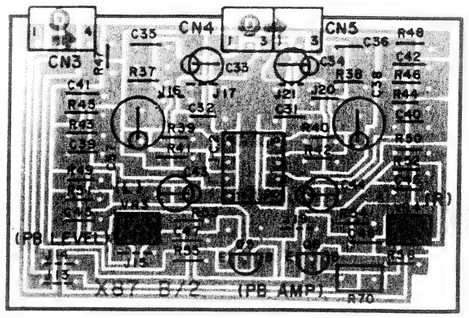


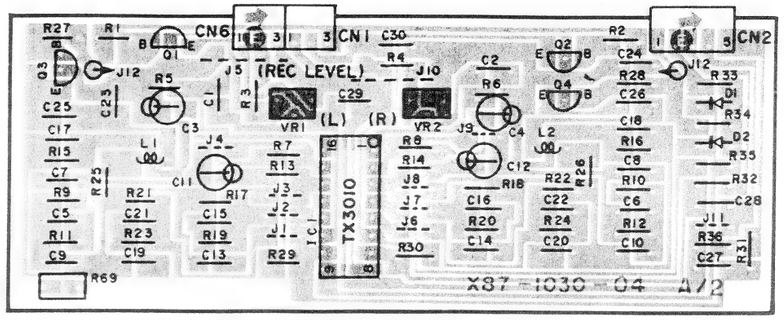


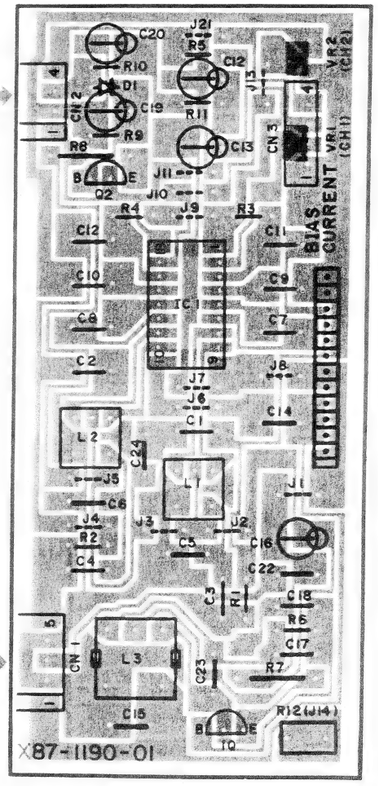


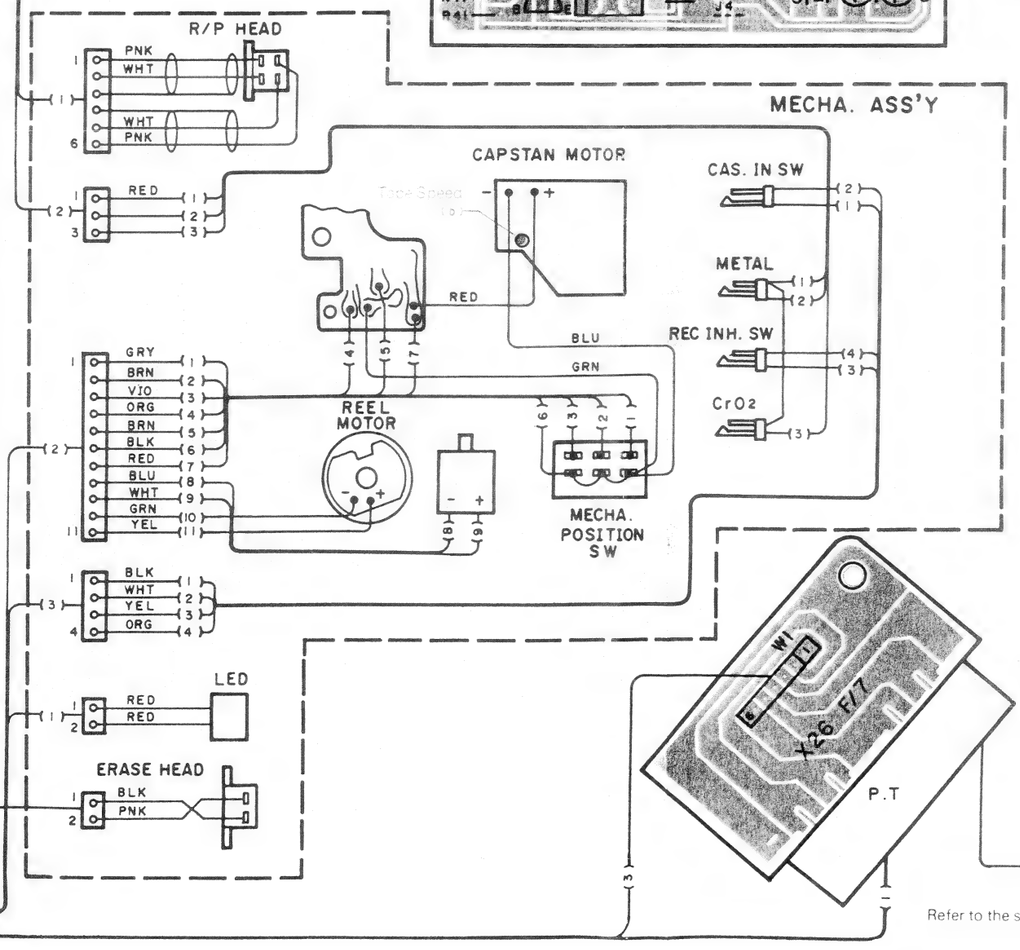
OUT IN
LINE









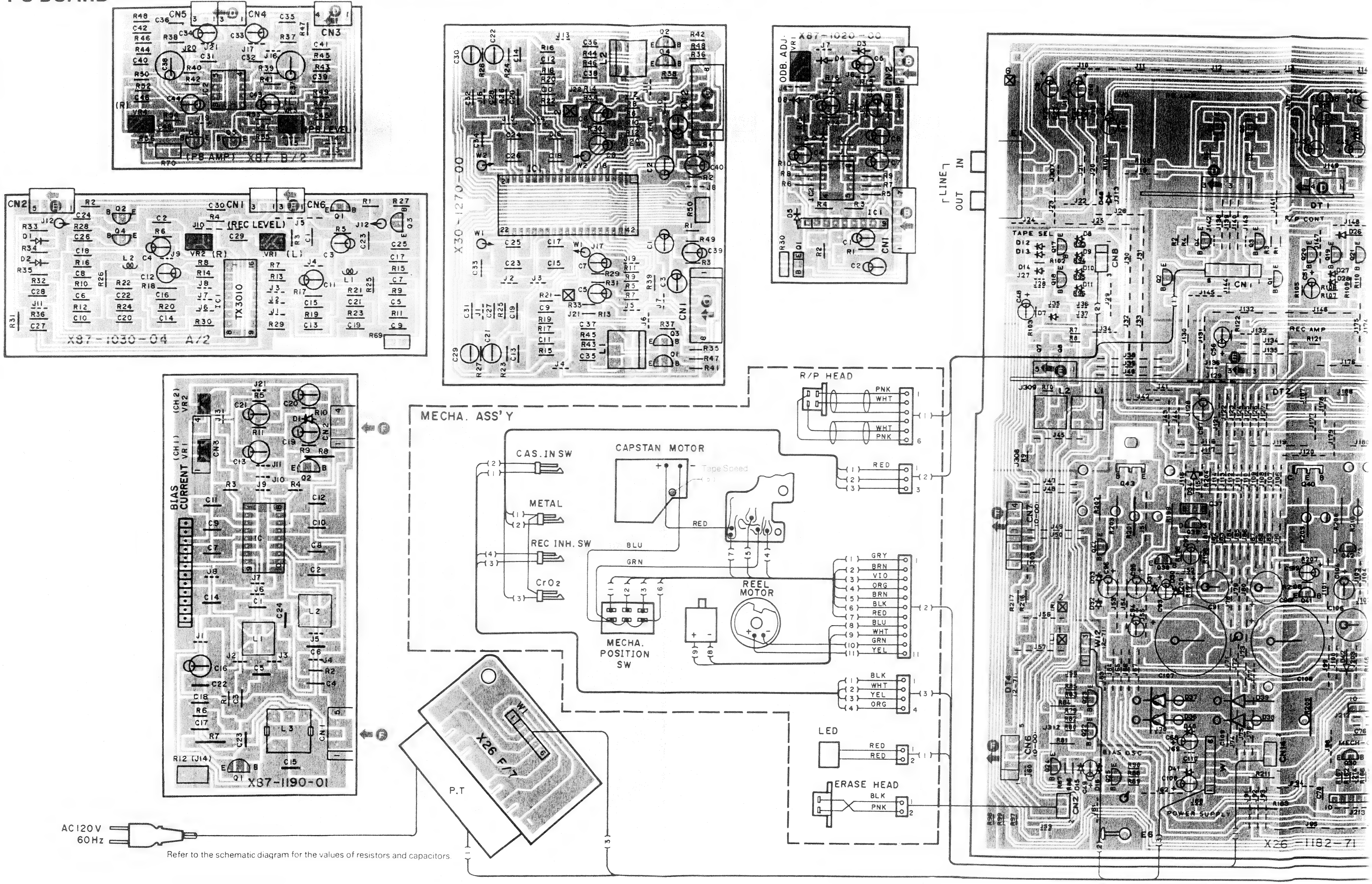


AC120V
60Hz

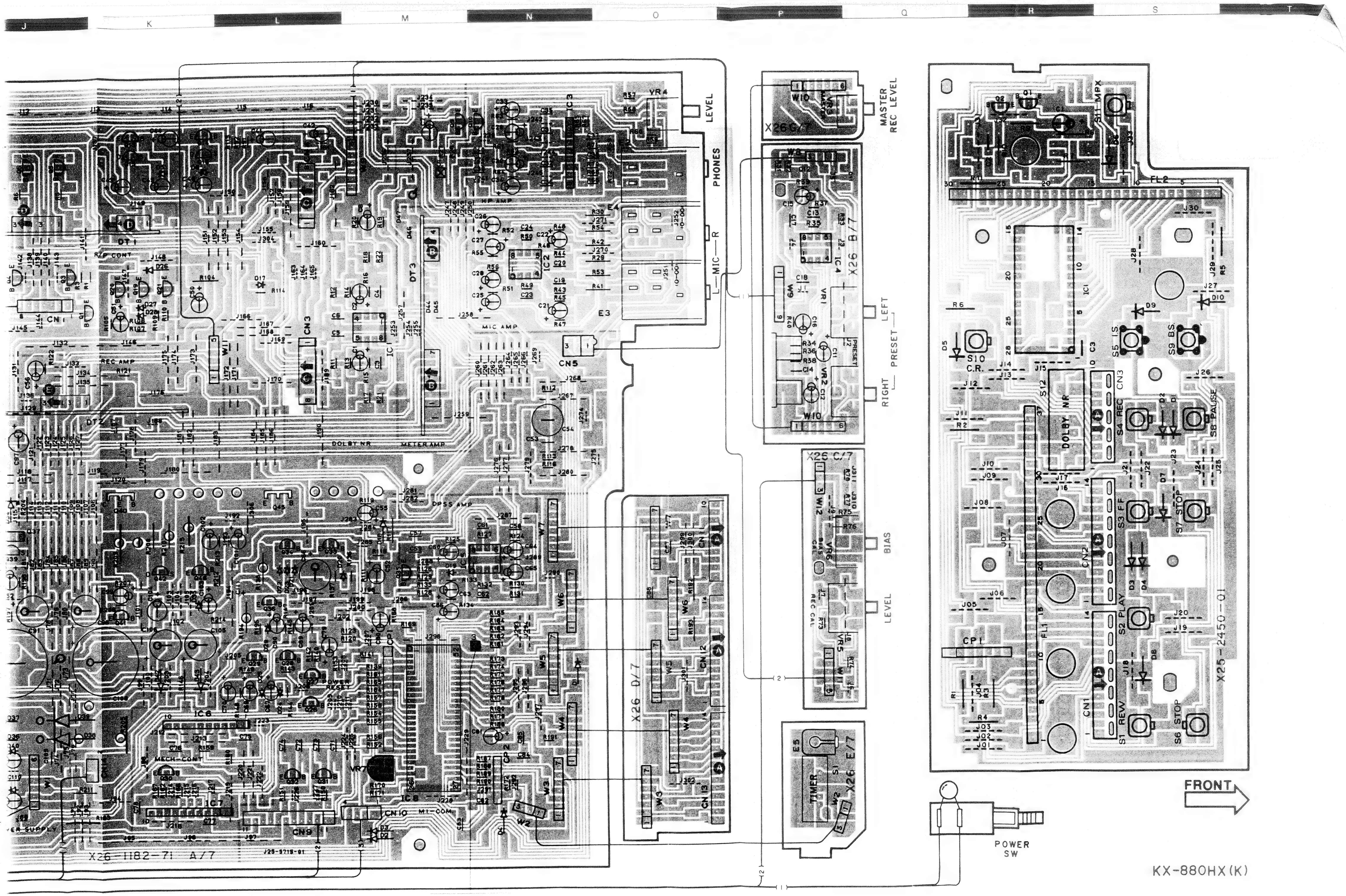
Refer to the schematic diagram for the values of resistors and capacitors.

KX-880HX (K)

PC BOARD (Component Side View)

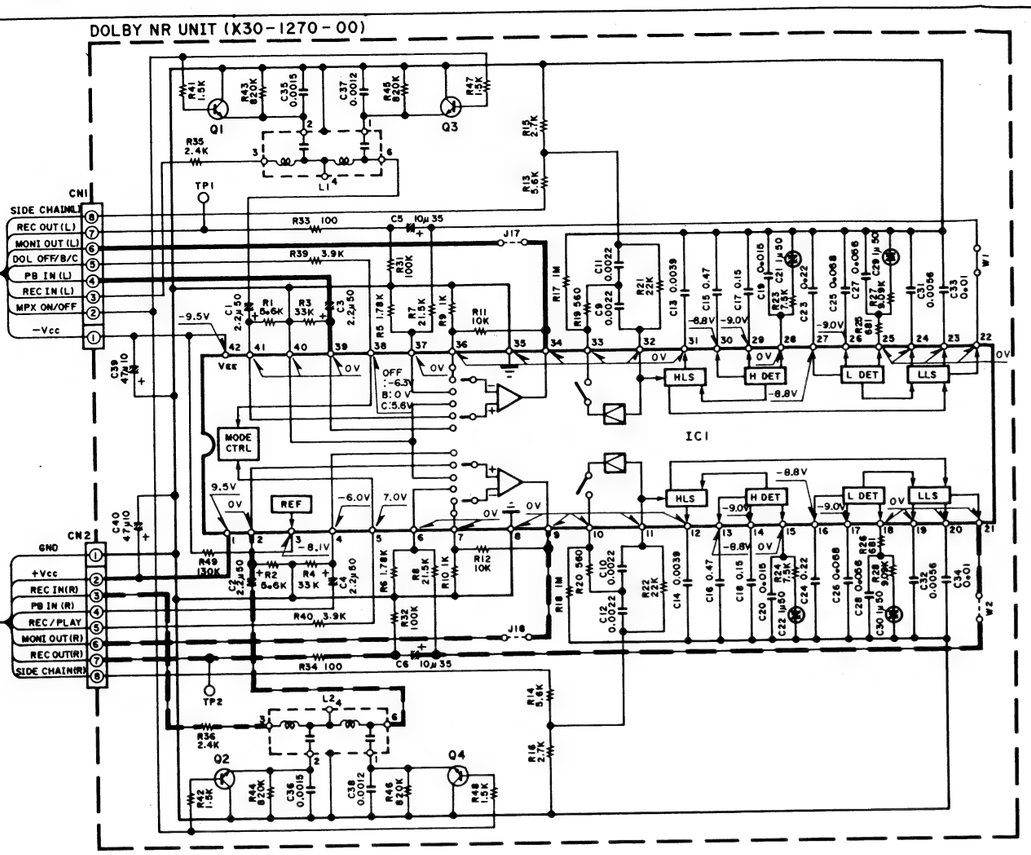


Refer to the schematic diagram for the values of resistors and capacitors.


J K L M N O P Q R S T
X26-1182-71 A/7
J25-5715-01
X26 G/7
X26 B/7
X26 C/7
X26 D/7
X26 E/7
X25-2450-01
LEVEL
PHONES
R
L — MIC — R
MASTER REC LEVEL
LEFT
PRESET
RIGHT
BIAS
LEVEL
REC CAL
BIAS CAL
TIMER
HP AMP
MIC AMP
REC AMP
DOLBY NR
METER AMP
DPSS AMP
MECH-CONT
POWER RESET
MI-COM
R/P CONT
POWER SUPPLY
IC6
IC7
IC8
CN3
CN5
CN9
CN10
CN12
CN13
S1 REW
S2 PLAY
S3 FF
S4 REC
S5 I.S.
S6 STOP
S7 STOP
S8 PAUSE
S9 BS.
S10 C.R.
S11 MPX
S12
DOLBY NR
FL1
FL2
CP1
FRONT
POWER SW

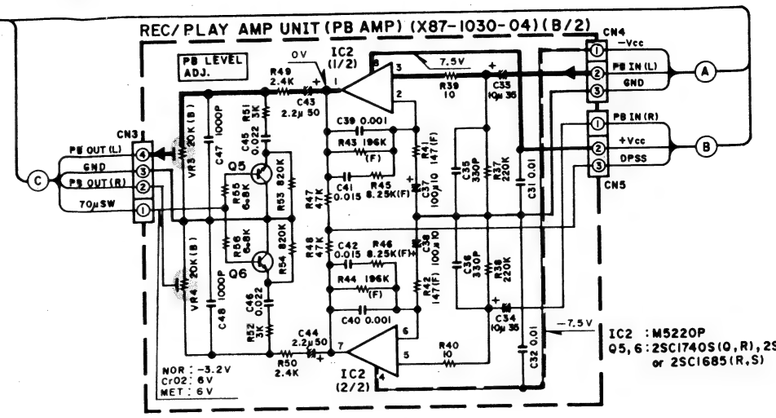
KX-880HX(K)

DOLBY NR UNIT (X30-1270-00)



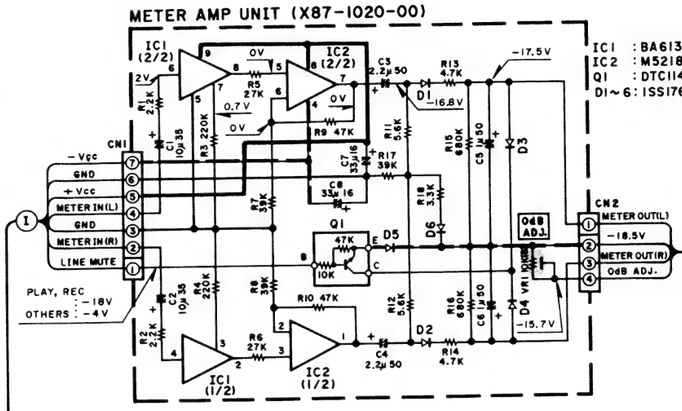
IC1 : CX20188
Q1~4 : 2SC1740S(Q,R) or 2SC945(A)(Q,P)

REC/PLAY AMP UNIT (PB AMP) (X87-1030-04)(B/2)



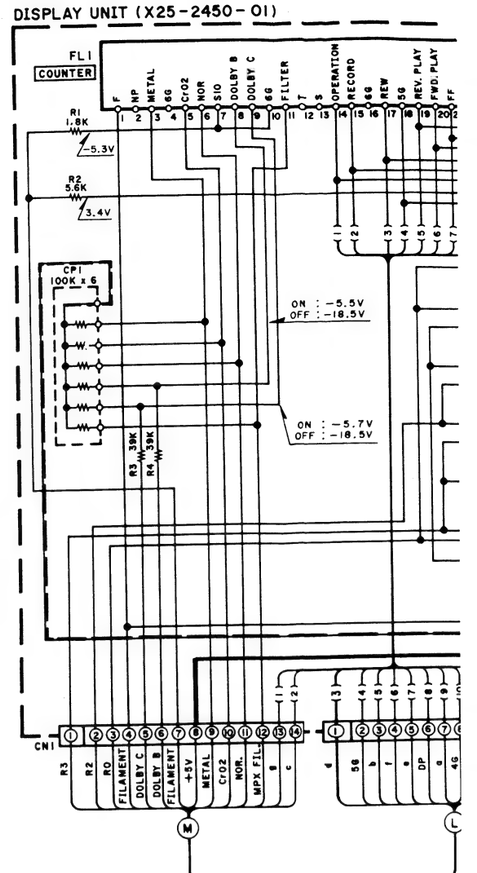
IC2 : M5220P
Q5,6 : 2SC1740S(Q,R), 2SC945(A)(Q,P) or 2SC1685(R,S)

METER AMP UNIT (X87-1020-00)

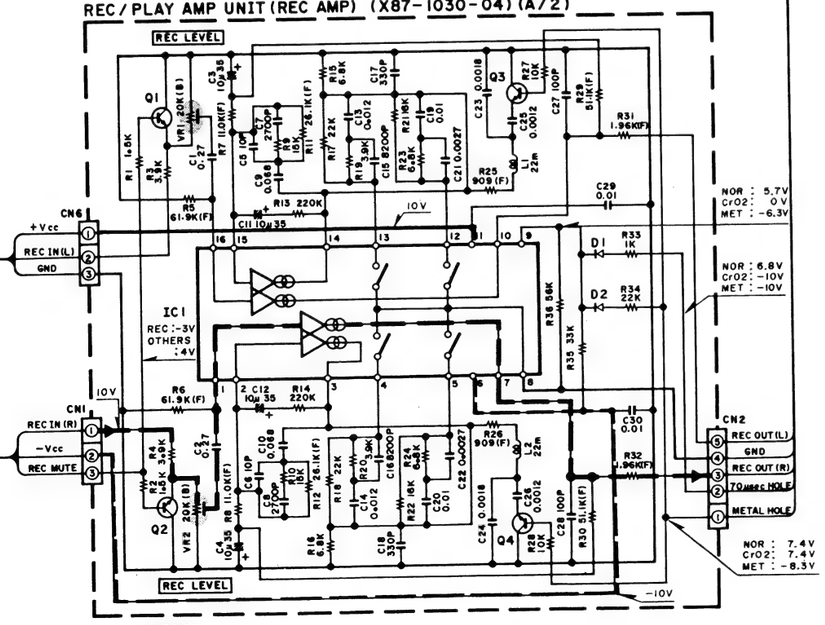


IC1 : BA6138
IC2 : M5218P, AN6556 or NJM4558D
Q1 : DTC114YFF
D1~6 : 1SS176

DISPLAY UNIT (X25-2450-01)

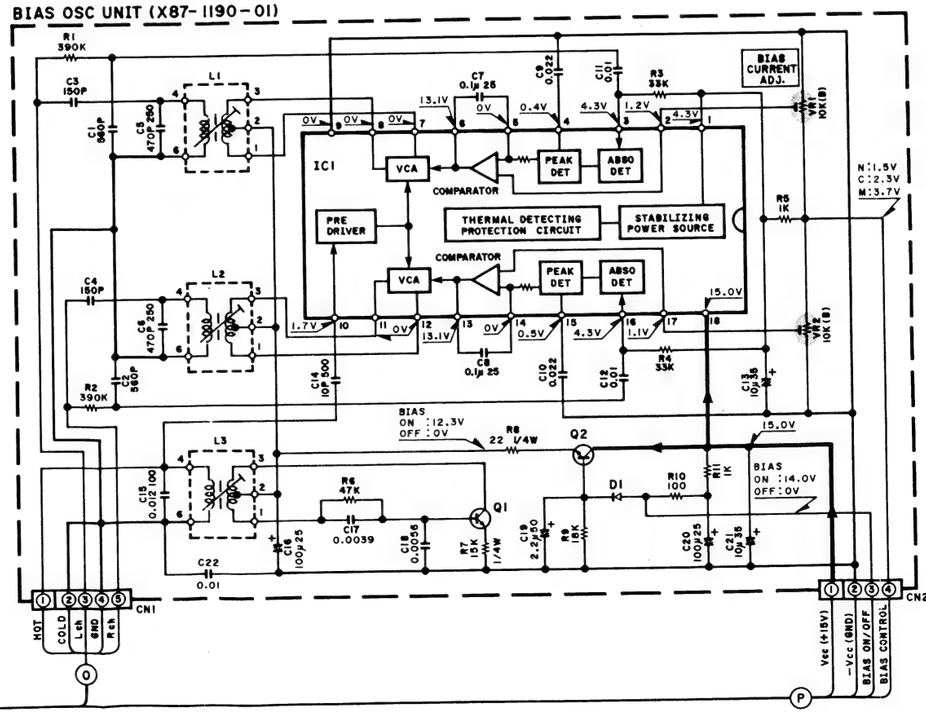


REC/PLAY AMP UNIT (REC AMP) (X87-1030-04)(A/2)

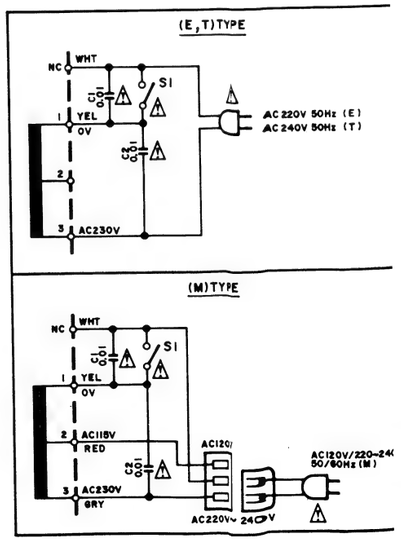


IC1 : TX3010N
Q1~4 : 2SC1740S(Q,R) or 2SC945(A)(Q,P) or 2SC1685(R,S)
D1,2 : 1SS176

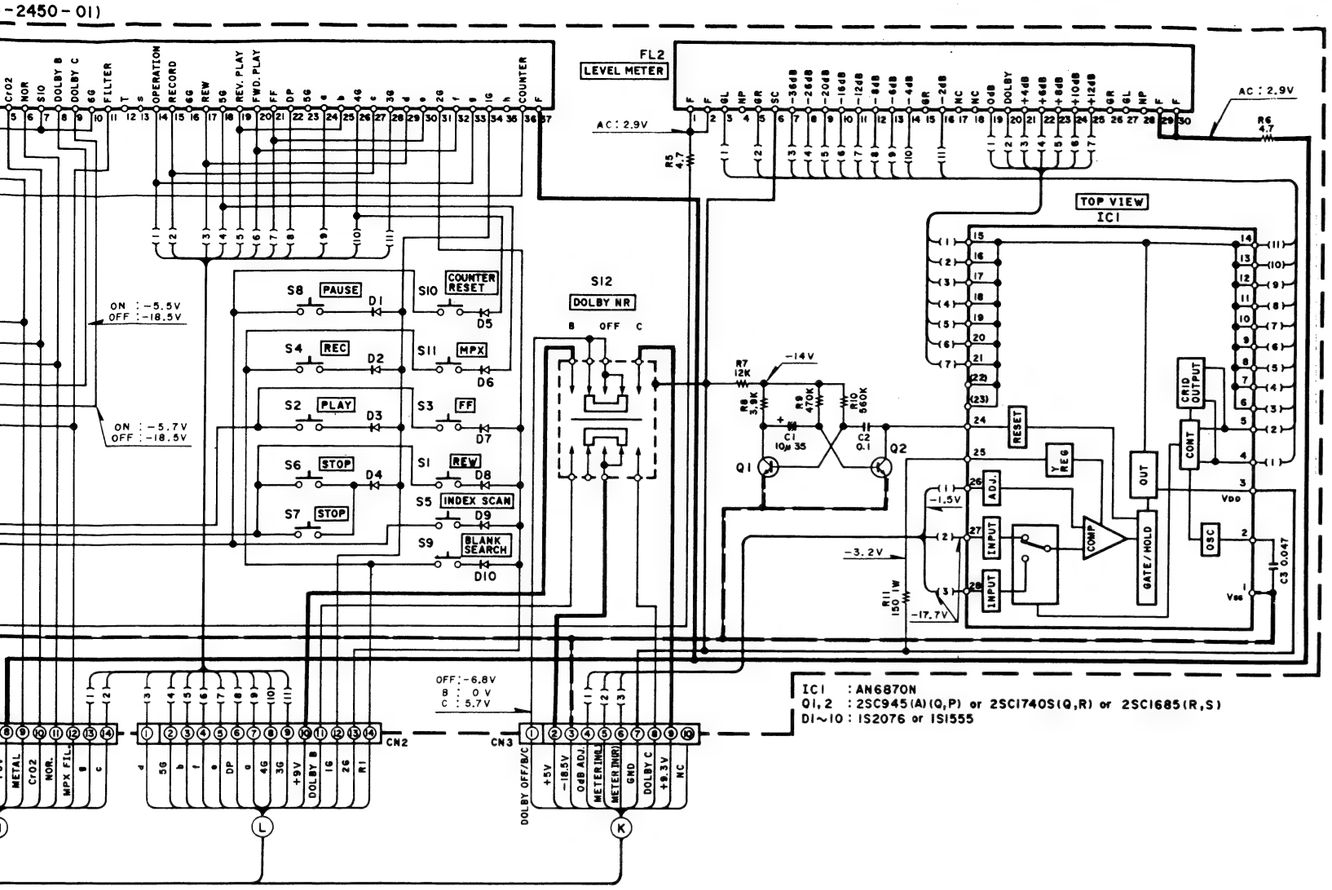
BIAS OSC UNIT (X87-1190-01)



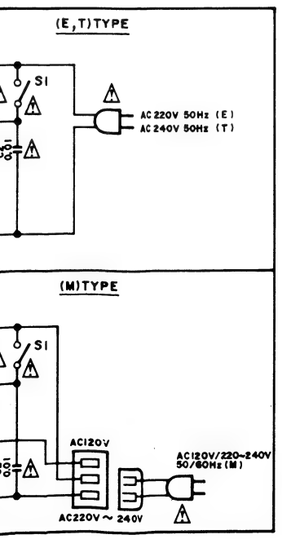
IC1 : μPC1297CA
Q1,2 : 2SD863(E,F)
D1 : 1SS176 or 1SS133



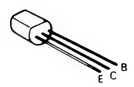
-2450-01)



SIGNAL LINE
RECORDING LINE
GND LINE
+B LINE
−B LINE

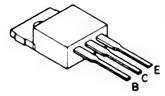


2SA733 (A)
2SA954
2SA992
2SC1685
2SC1845
2SC2003
2SC2878
2SC945 (A)
2SD1302
2SD863

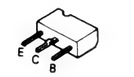


2SB772•1

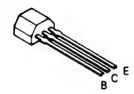
2SD1266



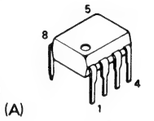
DTC114YFF



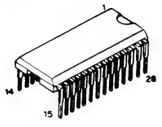
2SA933S
2SC1740S



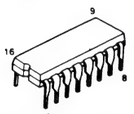
NJM4558D
NJM4558D (A)



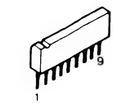
AN6870N



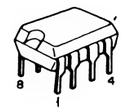
TX3010N



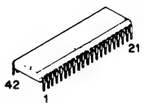
BA6138



AN6556
M5218P
M5218P-A
M5220P

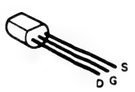


M5218L

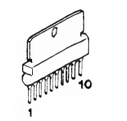


CX20188

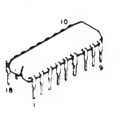
2SK163
2SK364



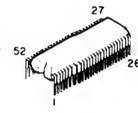
BA6209
BA6229



UPC1297CA



M50757-401SP



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

DC voltages are as measured with a high impedance voltmeter with a cassette loaded at playback mode. Values may vary slightly due to variations between individual instruments or/and units. Bias circuit DC voltages are as measured while in the record mode.

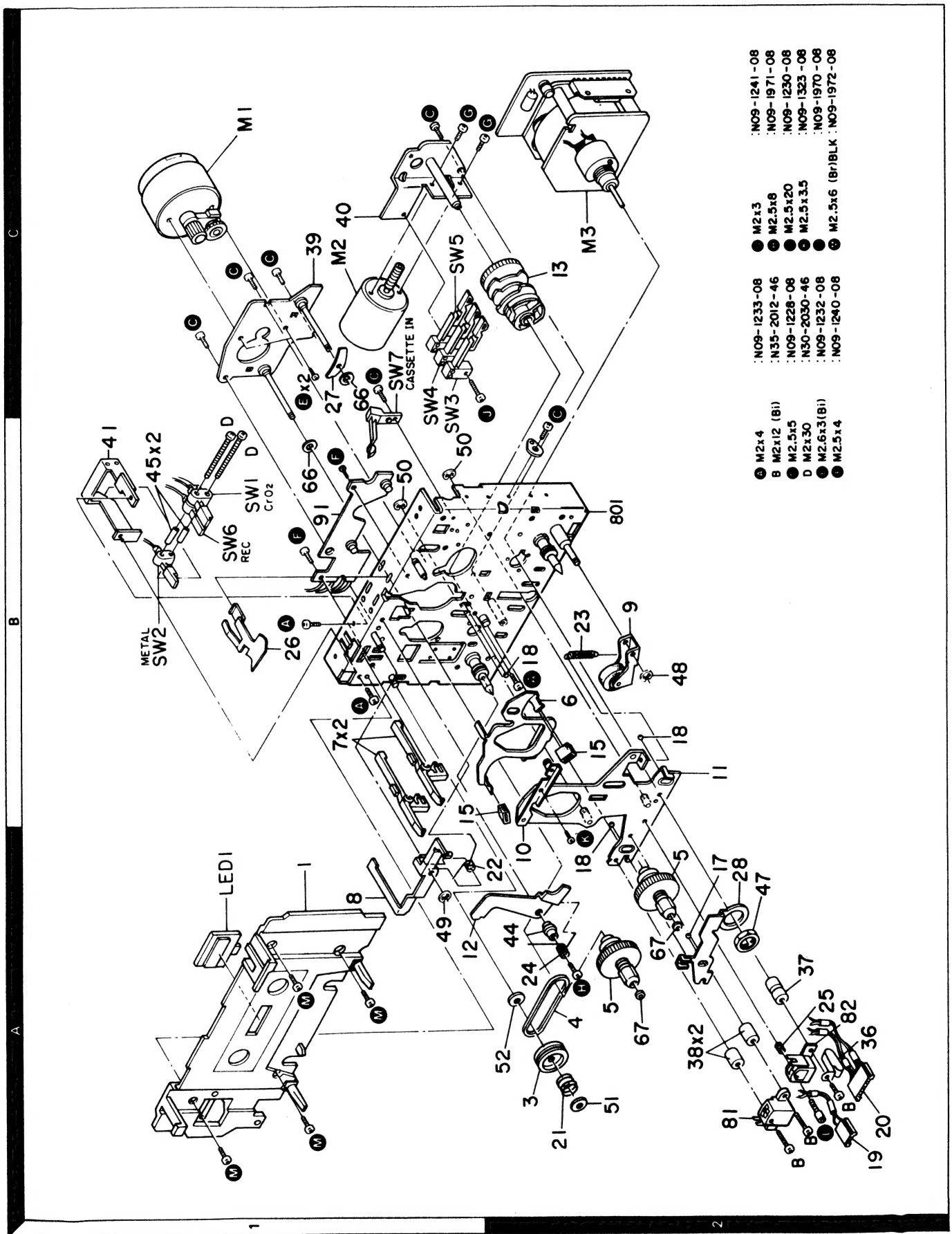
Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance, une cassette étant insérée en mode de lecture. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.
Les tensions c.c. du circuit de polarité doivent être mesurées, l'appareil étant en mode d'enregistrement.

Die angegebenen Gleichspannungswerte wurden bei eingesetzter Cassette in der Wiedergabe mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig. Die angegebenen Gleichspannungswerte der Vormagnetisierungsschaltung wurden in der Aufnahme-Betriebsart gemessen.

Note:
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on the Europe (E) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

KX-880HX
KENWOOD

EXPLODED VIEW (MECHANISM UNIT)



Parts with the exploded numbers larger than 700 are not supplied.

PARTS LIST

* New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Telle ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
KX-880HX						
201	1D		A01-1348-02	METALLIC CABINET		
202	2D	*	A20-5375-03	PANEL ASSY		
203	2D	*	A53-0986-03	CASSETTE LID ASSY		
204	1E		A53-0629-33	CASSETTE HOLDER ASSY		
208	2D		B07-1411-02	ESCUTCHEON (L MTR,DISP,KNOB)		
-			B46-0121-03	WARRANTY CARD	P	
-			B46-0122-13	WARRANTY CARD	E	
-			B46-0143-03	WARRANTY CARD	T	
-		*	B50-8588-00	INSTRUCTION MANUAL(ENGLISH)		
-		*	B50-8589-00	INSTRUCTION MANUAL(FRENCH)	PME	
-		*	B50-8590-00	INSTRUCTION MANUAL(SPANISH)	M	
-		*	B50-8591-00	INSTRUCTION MANUAL(G,D,I)	E	
⚠ C1 ,2			C91-0023-05	CERAMIC 0.01UF AC250V	M	
⚠ C1 ,2			C91-0647-05	CERAMIC 0.01UF P	PTE	
213	1E		D10-1764-04	LEVER		
214	1E		D39-0172-05	DAMPER ASSY		
⚠ 217	1E		E03-0102-25	AC INLET	M	
218	1E		E30-0505-05	AUDIO CORD		
⚠ 219	1F		E30-0459-05	AC POWER CORD	E	
⚠ 219	1F		E30-0780-05	AC POWER CORD	P	
⚠ 219	1E		E30-1305-15	AC POWER CORD (INLET)	M	
⚠ 219	1F		E30-1416-05	AC POWER CORD	T	
223	1E		G01-1741-04	TORSION COIL SPRING(LEVER)		
224	1F		G01-1742-04	TORSION COIL SPRING(CASET HOLD		
-		*	H01-7701-04	ITEM CARTON CASE		
-		*	H10-1827-12	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-1828-12	POLYSTYRENE FOAMED FIXTURE		
-			H20-0417-14	PROTECTION COVER(460X370X360)	M	
-			H25-0224-04	PROTECTION BAG (800X400X0.03)	PTE	
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
229	2E,2F		J02-0190-15	FONT		
230	2F		J19-2536-05	UNIT HOLDER (PCB)		
232	2E		J21-3326-05	JACK MOUNTING HARDWARE(PHONES)		
⚠ 235	1F		J42-0083-05	POWER CORD BUSHING	PTE	
-			J61-0307-05	WIRE BAND		
239	2D		K27-1082-04	KNOB (BUTTON) POWER		
240	2D		K27-1594-04	KNOB (LEVER) DOLBY NR		
242	2E		K27-1525-04	KNOB (BUTTON) COUNTER RESET		
243	2D		K29-1822-14	KNOB (BUTTON) MASTER REC LEVEL		
244	2D		K29-1863-14	KNOB (BUTTON) PLAY		
245	2F		K29-1865-14	KNOB (BUTTON) FF		
246	2D		K29-1866-14	KNOB (BUTTON) REW		
247	2E		K29-1890-04	KNOB (BUTTON) REC		
248	2E		K29-1891-14	KNOB (BUTTON) PAUSE		
249	2D		K29-2000-14	KNOB (BUTTON) PRESET		
250	2D		K29-2200-04	KNOB (BUTTON) EJECT		
251	2D		K29-2201-04	KNOB (BUTTON) BIAS,LEVEL		
252	2E		K29-2202-14	KNOB (BUTTON) STOP		
253	2D		K29-2203-04	KNOB (BUTTON) MPX FILTER		

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R209			RS14KB3D150J	FL-PR00F RS 15 J 2W		
R210			RD14AB2E331J	FL-PR00F RD 330 J 1/4W		
R211			R92-0228-05	FUSE RESIST 100 G 1/4W		
R215			RS14DB3A182J	FL-PR00F RS 1.8K J 1W		
VR1 ,2	2E		R01-4032-05	POTENTIOMETER(50K)REC LVL,PRFS		
VR3	2E		R10-5020-05	POTENTIOMETER(100KX2)REC LVL		
VR4	2F		R10-3023-05	POTENTIOMETER(10KX2)PHONES LVL		
VR5	2E		R06-2015-05	POTENTIOMETER(5KX2)BIAS-CALIBR		
VR6	2E	*	R01-3043-05	POTENTIOMETER(10K) BIAS		
VR7			R12-3126-05	TRIMMING POT. (10KB)CLOCK ADJ		
S1	2D		S31-2062-15	SLIDE SWITCH (TIMER)		
D1 -4			1SS133	DIODE		
D1 -4			1SS176	DIODE		
D5 ,6			HZS8.2S(B2)	ZENER DIODE		
D5 ,6			RD8.2JS(B2)	ZENER DIODE		
D7 -11			1SS133	DIODE		
D7 -11			1SS176	DIODE		
D13 -22			1SS133	DIODE		
D13 -22			1SS176	DIODE		
D23			HZS5.1N(B2)	ZENER DIODE		
D23			RD5.1ES(B2)	ZENER DIODE		
D24 -28			1SS133	DIODE		
D24 -28			1SS176	DIODE		
D29			HZS5.6N(B2)	ZENER DIODE		
D29			RD5.6ES(B2)	ZENER DIODE		
D30			HZS5.1N(B2)	ZENER DIODE		
D30			RD5.1ES(B2)	ZENER DIODE		
D31			1SS133	DIODE		
D31			1SS176	DIODE		
D32			HZS8.2N(B2)	ZENER DIODE		
D32			RD8.2ES(B2)	ZENER DIODE		
D33			HZS5.6N(B2)	ZENER DIODE		
D33			RD5.6ES(B2)	ZENER DIODE		
D34			HZS3.9N(B)	ZENER DIODE		
D34			RD3.9ES(B)	ZENER DIODE		
D35			HZS5.1N(B2)	ZENER DIODE		
D35			RD5.1ES(B2)	ZENER DIODE		
D36 -39			GP20DLN	DIODE		
D40 ,41			1SS131	DIODE		
D40 ,41			1SS178	DIODE		
D42 ,43			DSM1A1	DIODE		
IC1			M5218P	IC(OP AMP X2)		
IC2			M5218P-A	IC(OP AMP X2)		
IC2			NJM4558D(A)	IC(OP AMP X2)		
IC3			M5218L	IC(OP AMP X2)		
IC4			M5218P-A	IC(OP AMP X2)		
IC4			NJM4558D(A)	IC(OP AMP X2)		
IC5			M5218P	IC(OP AMP X2)		
IC5			NJM4558D	IC(OP AMP X2)		
IC6			BA6209	IC(MOTOR DRIVER)		
IC7			BA6229	IC(MOTOR DRIVER)		
IC8			M50757-401SP	IC(MICROPROCESSOR)		
Q1 -6			2SC1845(F,E)	TRANSISTOR		
Q9 ,10			2SC2878(B)	TRANSISTOR		

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Q9 ,10			2SD1302(S,T)	TRANSISTOR		
Q13			2SC1740S(Q,R)	TRANSISTOR		
Q13			2SC945(A)(Q,P)	TRANSISTOR		
Q14			2SA733(A)(Q,P)	TRANSISTOR		
Q14			2SA933S(Q,R)	TRANSISTOR		
Q15 ,16			2SK163(M,N)	FET		
Q15 ,16			2SK364(BL,V)	FET		
Q17 -19			2SA733(A)(Q,P)	TRANSISTOR		
Q17 -19			2SA933S(Q,R)	TRANSISTOR		
Q20			2SA992(F,E)	TRANSISTOR		
Q21			2SA733(A)(Q,P)	TRANSISTOR		
Q21			2SA933S(Q,R)	TRANSISTOR		
Q22 -25			2SC1740S(Q,R)	TRANSISTOR		
Q22 -25			2SC945(A)(Q,P)	TRANSISTOR		
Q26			2SA733(A)(Q,P)	TRANSISTOR		
Q26			2SA933S(Q,R)	TRANSISTOR		
Q27 -32			2SC1740S(Q,R)	TRANSISTOR		
Q27 -32			2SC945(A)(Q,P)	TRANSISTOR		
Q33 ,34			2SA733(A)(Q,P)	TRANSISTOR		
Q33 ,34			2SA933S(Q,R)	TRANSISTOR		
Q35			2SC1740S(Q,R)	TRANSISTOR		
Q35			2SC945(A)(Q,P)	TRANSISTOR		
Q36			2SD863(E,F)	TRANSISTOR		
Q37			2SD1266(Q,P)	TRANSISTOR		
Q38			2SC2003(L,K)	TRANSISTOR		
Q39			2SK163(M,N)	FET		
Q39			2SK364(BL,V)	FET		
Q40			2SB772*1(Q,P)	TRANSISTOR		
Q41			2SA954(L,K)	TRANSISTOR		
Q42			2SK163(M,N)	FET		
Q42			2SK364(BL,V)	FET		
Q43			2SD1266(Q,P)	TRANSISTOR		
Q44			2SC1740S(Q,R)	TRANSISTOR		
Q44			2SC945(A)(Q,P)	TRANSISTOR		
Q45			2SB772*1(Q,P)	TRANSISTOR		
Q46			2SA954(L,K)	TRANSISTOR		
DOLBY NOISE REDUCTION UNIT (X30-1270-00)						
C1 -4			CE04KW1H2R2M	ELECTRN 2.2UF 50WV		
C5 ,6			CE04KW1V100M	ELECTRN 10UF 35WV		
C9 -12			CF92FV1H222J	MF 2200PF J		
C13 ,14			CF92FV1H392J	MF 3900PF J		
C15 ,16			CF92FV1H474J	MF 0.47UF J		
C17 ,18			CF92FV1H154J	MF 0.15UF J		
C19 ,20			CF92FV1H153J	MF 0.015UF J		
C21 ,22			C90-1349-05	NP-ELEC 1UF 50WV		
C23 ,24			CF92FV1H224J	MF 0.22UF J		
C25 ,26			CF92FV1H683J	MF 0.068UF J		
C27 ,28			CF92FV1H563J	MF 0.056UF J		
C29 ,30			C90-1349-05	NP-ELEC 1UF 50WV		
C31 ,32			CF92FV1H562J	MF 5600PF J		
C33 ,34			CF92FV1H103J	MF 0.01UF J		
C35 ,36			CF92FV1H152J	MF 1500PF J		
C37 ,38			CF92FV1H122J	MF 1200PF J		
C39 ,40			CE04KW1A470M	ELECTRN 47UF 10WV		

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9	2B		D10-1616-08	PINCH ARM		
10	2A		D10-0321-08	ARM ASSY		
11	2B	*	D10-2100-08	HEAD BASE CALKED ASSY		
12	1A		D10-0312-08	LOCK PLATE		
13	2C		D13-0080-08	GEAR (CAM)		
15	1B,2B		D30-0012-08	BRAKE (RUBBER)		
17	2A		D90-0012-04	STEEL BALL (Ø3)		
18	2A,2B		D90-0020-04	STEEL BALL (Ø2)		
19	2A	*	E31-4369-08	CONNECTING WIRE(2P)C HEAD		
20	2A	*	E31-3776-08	CONNECTING WIRE(6P)R/P HEAD		
21	2A	*	G01-2199-08	COMPRESSION SPRING (LOCK PLATE		
22	2A		G01-1819-08	TORSION COIL SPRING		
23	2B		G01-0483-08	TENSION SPRING (R/P HEAD)		
24	2A	*	G01-2200-08	TORSION SPRING		
25	2A	*	G01-2198-08	COMPRESSION SPRING(AZIMUTH)		
26	1B		G02-0095-08	FLAT SPRING (CASSETTE)		
27	1C		G02-0096-08	FLAT SPRING (BACK TENSION)		
28	2A		G02-0386-08	FLAT SPRING (HEAD)		
36	2A		J11-0059-08	CLAMPER		
37	2A		J13-0213-08	SPACER (R/P HEAD)		
38	2A		J13-0214-08	SPACER (E HEAD)		
39	1C		J21-3176-08	MOUNTING HARDWARE(REEL DISK)		
40	1C		J21-3177-08	MOUNTING HARDWARE(LOCK LVR)		
41	1B		J21-3785-08	MOUNTING HARDWARE(LEAF SW)		
44	2A		J31-0269-08	COLLAR		
45	1B		J31-0268-08	COLLAR		
			J61-0307-05	WIRE BAND		
47	2A		N10-2090-46	HEXAGON NUT (M9)		
48	2B		N24-3020-45	E TYPE RETAINING RING(PR ASSY)		
49	1A		N24-3025-45	E TYPE RETAINING RING		
50	1B		N24-3030-45	E TYPE RETAINING RING		
51	2A	*	N19-1123-08	FLAT WASHER		
52	2A	*	N19-1122-08	FLAT WASHER		
66	1B,1C		N19-0335-08	FLAT WASHER (Ø3.1)		
67	2A		N19-0334-08	FLAT WASHER (Ø1.8)REEL DISK		
A	1B,2B		N09-1233-08	SCREW (M2X4)		
C	1C		N09-1228-08	SCREW (M2.5X5)		
E	1C		N09-1232-08	SCREW (M2.6X3)		
F	1B		N09-1240-08	SCREW (M2.5X4)		
G	1C,2C		N09-1241-08	SCREW (M2X3)		
H	2A	*	N09-1971-08	SCREW (M2.5X8) LOCK PLATE		
J	2C		N09-1230-08	SCREW (M2.5X20)		
K	2A		N09-1323-08	SCREW (M2.5X3.5)		
L	2A	*	N09-1970-08	SCREW (M2) AZIMUTH		
M	1A	*	N09-1972-08	SCREW (M2.5X8) DRESSING PLATE		
SW1 ,2	1B		S46-1051-08	LEAF SWITCH (CR02,METAL)		
SW3 -5	1C		S46-1017-08	LEAF SWITCH (POSITION)		
SW6	1B		S46-1051-08	LEAF SWITCH (REC)		
SW7	1C		S46-1019-08	LEAF SWITCH (CASSTTE IN)		
81	2A		T32-0304-05	ERASE HEAD		
82	2A		T34-0318-05	REC/PLAY HEAD		
M1	1C	*	T42-0467-08	REEL MOTOR ASSY		
M2	1C		T42-0017-08	MOTOR ASSY		

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M3	2C	*	T43-0054-08	DD MOTOR (PAD)		
91	1B	*	W02-0905-08	SENSOR ASSY		

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